ELECTRONIC & MOBILE LEARNING
International Seminar Proceedings

International Seminar on Electronic & Mobile Learning
8 August 2016

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8 August, 2016

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Foreword

The role of Educational Technology in teaching is great importance because of the use of Information and communication technologies; therefore it needs continuous research to meet dynamics needs in rapid change environment recently. International research clinic and E&M Seminar in Educational Technology was a two days' workshop and seminars schedule to meet those needs.

Proceedings have been prepared for papers of the keynote speaker, facilitators, and all presenters who have participated in this seminar. In accordance with the title of the seminar an outline of the paper in these proceedings can be grouped on seven topics, namely: Electronic & Mobile (E&M) Learning Design, Electronic & Mobile (E&M) Learning Development, Electronic & Mobile (E&M) Learning Implementation and Management, Electronic & Mobile (E&M) Learning Evaluation, Electronic & Mobile (E&M) Learning Program in Practice, and Trends, Issues in e-Learning Research for Education and Training, and Teaching and Learning Research in Education and Training. Papers were written by various agencies and groups such as lecturers, teachers, researchers, practitioners and observers with a lot of interest in education in Indonesia.

Finally, we realized that these proceedings are far from perfect. To that end, advice and input from all parties is expected to make improvements forward. Finally, we hope that these proceedings may give a significant contribution to improving the quality of education and dissemination of knowledge.

The Organizing Committee of IRCEMLSET

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ELECTRONIC, MOBILE AND UBIQUITOUS LEARNING IN HIGHER EDUCATION

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Abstract

21st century declared to be the age of information and communication technology. Education has been completely revolutionised through the introduction of computers and the internet; students are not only able to access a wealth of information across the World Wide Web, but can also communicate with teachers and others, thus providing an effective and enjoyable learning experience and personalized learning. But how has the technology developed from original computer assisted learning systems, through to new and innovative smart learning environments.

This is the time when more people everywhere are involved in acquiring new knowledge and skills. We can not work in the society without on-line technology. Electronic Learning is a subset of Distance Learning and Mobile Learning is a Subset of E-learning. E-learning and M- learning have become extremely important buzz words of the educational technological revolution. The advancement of computing and communication technologies have promoted the learning paradigms from conventional learning to electronic learning (e-learning), from electronic learning to mobile learning (m-learning) and now it is evolving to ubiquitous learning (u-learning). This present paper was based on secondary sources of data highlighting the comparison of concept; characteristics; similarities and differences; Research Focus and Instructional Design Model in U-Learning

Key Words: e-Learning, m-Learning, u-Learning, Instructional Design and Research Focus.

INTRODUCTION

The first mechanical system to be associated with learning was developed back in the early 1920s by an educational psychology professor at Ohio State University. The Pressey Testing Machine developed by Professor Sidney L. Pressey aimed to provide a drill and practice learning system. The system was similar to the design of a typewriter with a display showing a question and number of answers. The user pressed the key corresponding to the answer and the machine recorded the answer. The tester was then able to check the answers and provide feedback. Pressey noted that "teaching machines are unique among instructional aids, in that the student not merely passively listen, watches, or reads but actively responds." The next main breakthrough came with the introduction of Computer Assisted Instruction at Stanford University during the 1960's and with the term e-learning. Introduction of mobile learning came in the 1970's with the concept of the Dynabook. Proposed by Alan Kay and the Learning Research Group at Xerox Palo Alto Research Center, the Dynabook was to be a book-sized computer that through the use of bespoke applications would assist learning. However this concept was never developed into a working system.

In early 1988, Mark Weiser of Xerox Corporation began to study ubiquitous computing. He explored the concept of non- obtrusive user interfaces that are able to deliver vast amounts of information, stating in the long run "personal computers and workstations will become practically obsolete because computing access will be

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everywhere" (Weiser, 1993). From this point forward ubiquitous computing came to the forefront of science and technology research, and with the development of communication technologies came the educational concept of ubiquitous learning (Song, 2008).

LITERATURE REVIEW

UNESCO gives high priority to the use of information and communication technologies (ICT) for expanding access to quality education. Dakar Framework for Action states that the potential of ICT should be used to help achieve EFA goals. According to the Medium-Term Strategy of the UNESCO Institute for Information Technologies in Education (IITE), "ICTs can expand access and enhance the quality of education. Monitoring progress, understanding results, but also learning by doing, are all essential to advancement" (UNESCO IITE, 2010). Majority of UNESCO Member States recognize ICT as the catalyst for educational reform and innovation leading to the increase of knowledge and information accessibility, the revision of curriculum to meet the new demands of future education, teacher development, social inclusion, and further raising the quality of education.

Rapid development of information technology helps to drive knowledge and information-based society. How to define knowledge and information-based society and what kind of trends can be expected in terms of change? In knowledge and information-based society, a new economic principle directs the society: knowledge is considered more important than any other property; knowledge and information prompt tougher competition than ever before.

Demands associated with social change lead education reform. Education must be able to respond to social changes and ensure adequate training of human resources to satisfy the demands of the changing society. No matter how hard we try to prepare for such changes, nobody can fully anticipate or predict changes to come. In order to solve the education-related problems and to respond to the new demands of the changing society, there is a need for reforming school education and the educational system on the whole. ICT use in education and e-Learning as one of its components are one of the best ways to expand educational opportunity so that students and citizens can be satisfied with education.

E-learning plays an important role in the educational growth of any nation. It also offers opportunities for developing nations to enhance their educational development. It can also plays a critical role in preparing a new generation of teachers, as well as upgrading the skills of the existing teaching force to use 21st century tools and pedagogies for learning. So it is the changing trend in education. The modern technologies particularly the internet made education no longer limited to the four walls of the class room. E-learning comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked or not serve as specific media to implement the learning process. The term will still most likely be utilized to reference out-of classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum.

Mobile learning combines E-learning and mobile computing. Mobile learning is sometimes considered merely an extension of E-learning, but quality M-learning can only be delivered with an awareness of the special limitations and benefits of

mobile devices. Mobile learning has the benefits of mobility and its supporting platform. M-learning is a means to enhance the broader learning experience. M-learning is a powerful method for engaging learners on their own terms.

Though there are some differences lies between E-learning and M-learning, they are closely related. M-learning is a sub-set of E-learning. M- Learning has been identified as a new stage of distance and e-learning. However, m-learning is more than using mobile technologies to access information and a potential solution to global demands for more access to education, m-learning represents a challenge to conventional education practices. Some of these challenges are explored in this critical meta- analysis of mobile learning research on the acceptance, readiness, and use of mobile digital devices for learning in higher education. According to the United Nations Educational there are currently over six billion mobile phone subscriptions worldwide, and for every one person who accesses the internet from a computer s/he does so from a mobile device. Their relationships are diagrammatically given below:

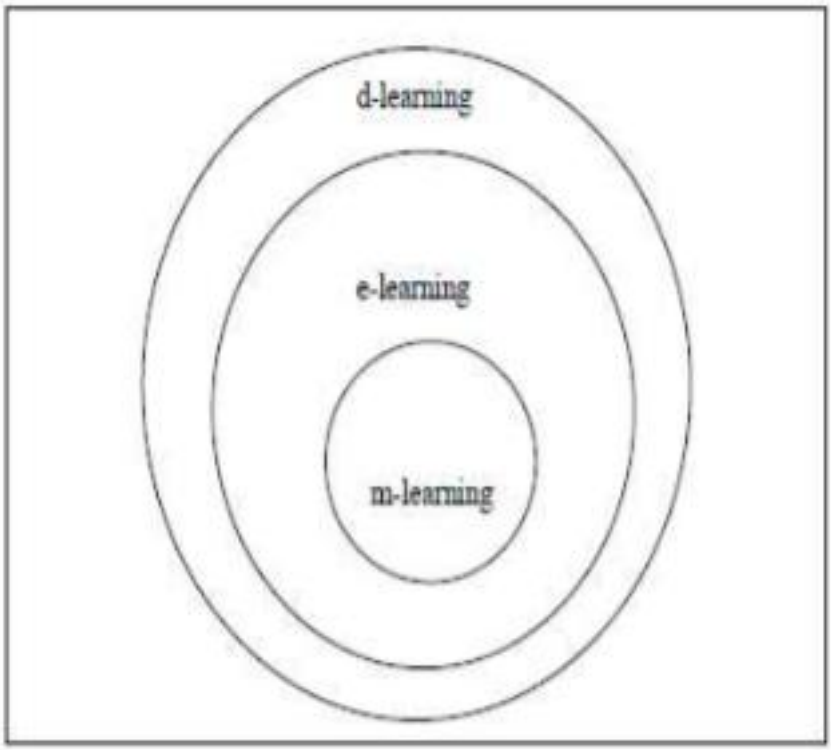

Figure 1: Perspective of Learning Paradigm (Georgiev, et al., 2004)

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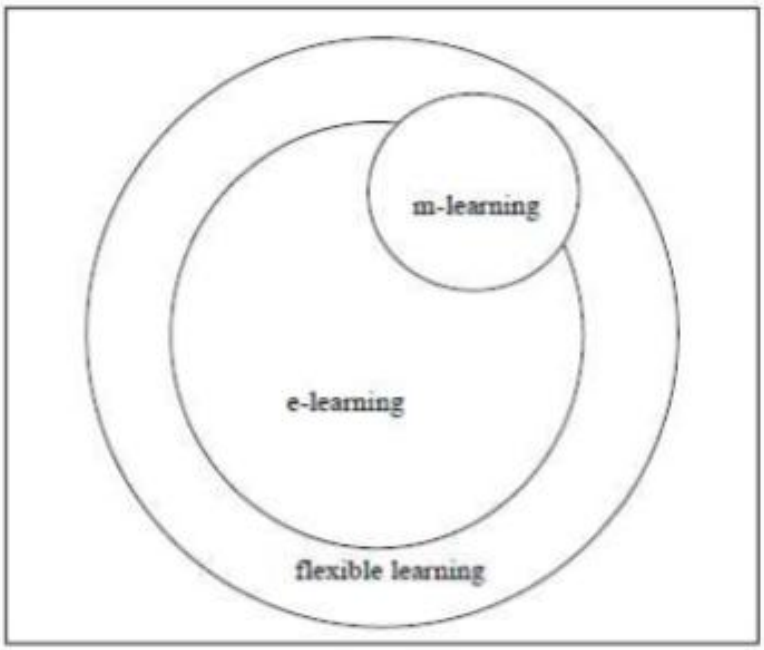

Figure 2: Relationship of E, M and Flexible Learning (Low and O'Connell, 2006)

Mobile technology in word open various ways for new educational technologies aimed at fulfilling the country's educational needs. There are various ways to use mobile phones for enhancing learning. Mobile phone plays an important role in our day-to-day lives in various purposes. One of the important purposes is learning. Mobile learning, as a novel educational approach, encourages flexibility; students do not need to be a specific age, gender, or member of a specific group or geography, to participate in learning opportunities. Restrictions of time, space and place have been lifted.

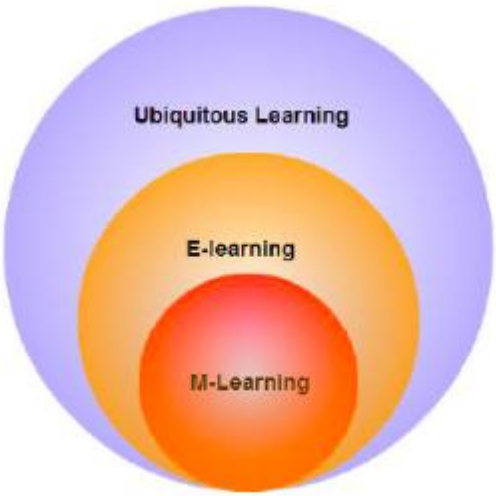

Figure 3: Pictorial Representation of Relation between E, M and U- Learning

Electronic (E) Learning

During the 1960s professors from Stanford University started experimenting with the use of computers, for teaching maths and reading to young children in schools. The experiment was devised to see whether introducing students to basic mathematical concepts at high school improved their ability to learn when they progressed to college. This study was deemed a success, so was expanded to see whether it was possible to improve a student's mathematical achievement before entering high school. Professor Patrick Suppes (1969) was at the forefront of this study, and in the spring of 1965 he introduced the concept of Computer-Assisted Instruction, one of the first attempts at what we now know as e-learning.

By the end of the project, Suppes believed computer assisted instruction would be an integral part of the teaching and learning experience. He said it would become an essential part of the teaching programme and would be as important as a text book.

Original e-learning systems, aimed to provide a similar experience to that of a teacher transferring knowledge to the pupil. This main theory then evolved, through research and new systems, to the concept of Computer Supported Collaborative Learning (CSCL). CSCL shifted the emphasis from isolated independent learning, to state-of-the-art systems providing a communication framework for multi-pupil learning experiences (Stahl, 2006). The next real step towards e-learning was by Professor William D. Graziadei of the State University of New York in 1993. Graziadei's study; Building Asynchronous and Synchronous Teaching-Learning Environments, was based around the concept of "universal access to the content anywhere anytime". With technology advancing at a tremendous rate, Graziadei wanted to deploy a simple system that would allow course material to be accessed via the internet, and in 1997 he published an article describing the concept of his course management system. A year after Graziadei's idea for the course management system came another project from Stanford University, which saw the introduction of E-folios. E-folios are a collection of artefacts that portray the learning experiences of the user. This can include original course/lecture material as well as material based around the individual students learning experience

E-folios can be viewed as the first real step towards ubiquitous computing. The E-folio system allowed users to have a private knowledge base, stored electronically which could be accessed from anywhere with a network connection to the system. The overall system would create an infinite knowledge base of both individual and shared material. This new concept completely changed the aim of e-learning from being solely in the class room to being anywhere, ubiquitous. E-folios became a huge part of e-learning. In 2006; Christopher Murray, University of Leeds and Neil Current, University of Bradford undertook a project looking into E-folios and their success (Murray, 2006). This project, titled the ELP project, aimed to evaluate E-folios at key stages of the "Student Lifecycle Model". Murray and Currant also noted that E-folios were at the time aimed at a particular age group or learning stage, so wondered whether it was possible for one system to support lifelong learning. Murray and Currant's project studied the use of E-folios by 3 different groups of students; Further Education students applying to university, undergraduate nurses/doctors in their initial years of work based training, and people in the

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workplace. Murray and Currant's study clearly demonstrates the key advantages of e-learning systems. The main emphasis on this project was user engagement. Without positive user engagement, e-learning systems will be seen as just another part of schooling; as opposed to a fun and beneficial learning experience. Learning technologies have evolved significantly as the technology industry advances; from the initial use of mainframe based systems, right through to web based systems. However this evolution has not introduced a new pedagogical methodology for teaching.

E-learning is the acquisition and use of knowledge distributed and facilitated primarily by electronic means. It may include the use of web-based teaching materials and hypermedia in general, multimedia CD-ROMs, websites, discussion boards, collaborative software, e-mail, blogs, wikis, test chat, computer aided assessment, educational animation, simulations, games, learning management software, electronic voting systems and more, with possibly a combination of different methods being used. E-learning is an approach to facilitate and enhance learning through and based on both computer and communication Technology. It is used to support distance learning through the use of WANS (Wide Area Net Workers), and may also be considered to be a form of flexible learning where learning is possible in no time. E-learning is also called 'online learning'. It is developed to apply information technology skills to education getting connected to the internet or any network is essential for E-learning. E-learning is a general term used to refer to computer-enhanced or technology enhanced learning. E-learning is naturally suited to distance learning and flexible learning, but can also be used in conjunction with face to face teaching, in which case the term blended learning is commonly used. E-learning is a means of education that incorporates self-motivation, communication, efficiency, and technology. It is a flexible term used to describing a means of teaching through technology. E-learning means sharing knowledge using technology, computer and network-enabled transfer of skills and knowledge. E-learning applications and processes include Web-based learning, computer- based learning, virtual classroom and digital collaboration. Content is delivered via Internet, intranet/extranet, wireless telephonic, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. It is the use of the Internet and related technologies for the development, distribution and enhancement of learning resources. This form of learning currently depends on networks and computers, but will likely evolve into systems consisting of a variety of channels (e.g., wireless, satellite), and technologies (e.g., cellular phones, personal digital assistants) as they are developed and adopted. E-learning can take the form of courses as well as modules and smaller learning objects. E-learning may incorporate synchronous or asynchronous access and may be distributed geographically with varied limits of time.

So there are some other definitions of E-learning which are as follows: (1) E-learning is instruction that is delivered electronically, in part or wholly – via a Web browser, through the Internet or an intranet, or through multimedia platforms such as CD-ROM or DVD (Hall, 1997); (2) E-learning is a structured, purposeful use of electronic system or computer in support of the learning process (Allen, 2003); (3) E-learning covers a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes delivering content via the Internet, intranet/extranet (LAN/WAN), audio and

videotape, satellite broadcast, interactive TV, and CD-ROM (ASTD, 2001); (4) E-learning is training delivered on a computer (including CD-ROM, Internet, or intranet) that is designed to support individual learning or organizational performance goals (Clark and Mayer, 2003).

There are some important characteristics of E-learning mentioned below: (1) E-learning is pedagogy empowered by digital technology; (2) E-learning is a term which is used to refer computer enhanced learning; (3) E-learning includes all types of technology enhanced learning (TEL), where technology is used to support the learning process; (4) Use of E-learning is generally confined to "on-line learning" carried out through the Internet or Web-based technology, with no face-to-face interaction; (4) E-learning conveys broader meaning than the terms CBL (Computer based learning) and CAI (Computer assisted instruction); (5) E-learning is broader in its meaning that they conveyed through the simple terms like "on-line learning" or "on-line education"; (7) Not synonymous to audio-visual and multimedia learning. E-learning should not be considered as synonymous to audio- visual learning, multi-media learning, distance education or distance learning. Although the audio-visual and multimedia technology and distance education programmes are based on the Internet and Web services provided through the computers, yet these are not identical but complementary; (7) Confined to Web-based and Internet-based learning: The use of the term E-learning should be confined to the type of learning carried out, supported or facilitated through Web enhanced instruction and the Internet based communications like e-mail, audio and video conferencing, mail list, live chats and telephony; (8) Exclusion of non-Internet and non-Web technology: All types of non-Internet and non-Web technology are not included in E-learning.

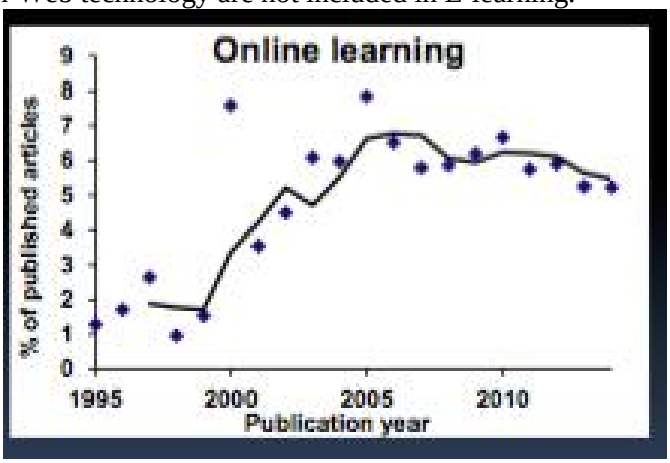

Figure 4: Research Trend in Online Learning 1995 - 2015

Mobile (M) Learning

M-learning is extremely hard to classify, mainly due to the ever advancing mobile technology industry. There are two common approaches to implementing mobile learning environments. The first, and notably most simple, is the introduction of web based electronic learning. As the internet advances into wireless technologies, mobile devices are able to view and download content over wireless connections; now e-learning simply becomes m-learning. The second approach to mobile learning

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addresses the concepts of location-dependent and situation-dependant learning. Through the use of m-learning, education can continue outside the classroom (on location), giving the student a greater and more advanced learning experience. M-learning can be used to support and solidify students learning, providing a different style of teaching and learning to that of normal worksheet activities. It can also be an extremely valuable tool for students with special needs providing an in depth and tailored learning experience.

There are also many challenges from a technology point of view, ranging from the physical device to content delivery. Major problems for mobile learning devices include; battery life, mobile and wireless connectivity, the file formats supported by specific devices and physical device screen size.

Mobile learning, sometimes called M-learning, is learning accomplished with the use of small, portable computing devices. These computing devices may include: smart phones, personal digital assistants (PDAs) and similar handheld devices. There is some debate on the inclusion of tablet and laptop computers. Often, wireless two-way internet connection is assumed as an integral component. Mobile learning refers to the use of mobile or wireless devices for the purpose of learning while on the move. Typical examples of the devices used for mobile learning include cell phones, smart phones, palmtops, and handheld computers; tablet PCs, laptops, and personal media players can also fall within this scope. M-learning is the idea that a student can learn from any place at any time using portable learning devices. M-learning or 'mobile learning' is any sort of learning that takes advantages of learning opportunities offered by mobile technologies.

So there are some other definitions of M-learning which are as follow: (1) Mobile learning is learning through mobile computational devices" (Quinn , 2000); (2) M- learning is not just electronic, it's mobile (Shepherd, 2001); (3) mobile learning educational process can be considered as any learning and teaching activity that is possible through mobile tools or in settings where mobile equipment is available (Colazzo, Ronchetti, Trifonova, and Molinari, 2003); (4) M-learning provides the potential to provide the right information to right people at the any time and any place using portable learning devices. Thus the M-learning can be summarized in a single statement – "deliverance of education or any learning via any portable devices (Ally, 2009)

There are some important characteristics of M-learning mentioned below: (1) Accessibility - The information is always available whenever the learners need to use it; (2) Immediacy - The information can be retrieved immediately by the learners; (3) Interactivity - The learners can interact with peers, teachers and experts efficiently and effectively through different media; (4) Context-awareness - The environment can adopt to the learners real situation to provide adequate information for the learners; (5) Permanency - The information remains unless the learners purposely remove it; (6) Flexible Learning, Large mass covered, reduces students' indiscipline and unrest problem; (7) Used Very where at every time; (8) Most of mobile devices have lower prices than desktop PCs; (9) Similar size and light weight than desktop PCs; (10) Ensure bigger students engage as M-learning is based on modern technologies, which students use in everyday life.

E-Learning is a subset of Distance Learning – Mobile Learning is a Subset of E-Learning. The conceptual shifts from E-learning to M-learning then to u-learning are given below:

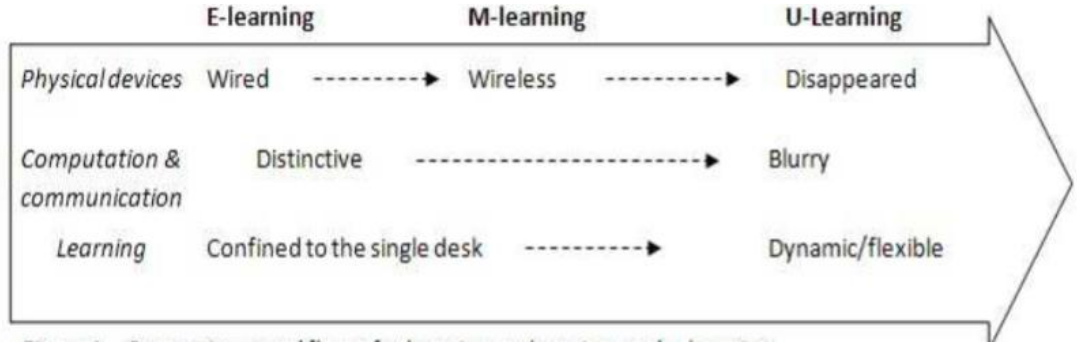

Figure 5: Comparison and Flow of E, M and U Learning

Similarities between E and M-Learning: (1) Each of them needs an infrastructure and a wide community base in dealing with wire and wireless electronic computer technologies; (2) Each of them needs a high cast technological system; (3) E- and M-learning provide students with digital literacy focusing on information processing; (4) Students are centre of learning process in both models (Self-Learning); (5) In both learning models students can access and surf the internet; (6) E-and M- learning models allow communication between individual students and between students and teachers anywhere and at anytime from one hand, and communication with local and international on the other via the use of e-mails and text message; (7) In both learning models the learning content is delivered in the form of texts, images and video clips; (8) Both learning models depend on developing problem solving and creative thinking skills among students; (9) E-and M- learning models are capable of providing learning opportunities to many students; (10) Learning material can be updated continuously in both learning models.

The Differences between E and M-Learning: (1) E- learning use fixed, wire devices such as PC's, but mobile learning uses wireless communication devices such as cell and smart phones, micro computers and personal digital assistants; (2) In E-learning, access to the internet is achieved the available telephone service, while mobile learning uses IR when accessing the internet anywhere at any time; (3) In E-learning, messages are exchanged via the internet whereas MMS and SMS messages are used to exchange information between users; (4) In E-learning, it is difficult to transfer books and files between individual learners, while in mobile learning, Bluetooth and IR technologies are used to exchange books and files among learners; (5) Storage applications used in E-learning are more effective than ones used in mobile learning.

Although m-learning was a new and remarkable concept; it can also be seen as an intermediate step between Electronic Learning and Ubiquitous Learning.

Research Focus in M- Learning

Previous studies of mobile learning fall into two broad research directions: evaluating the effectiveness of mobile learning, and designing mobile learning systems. Most research in the former showed positive effectiveness. For example,

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Evans (2008) used observation to describe a study of the effectiveness of mobile learning in the form of podcasting in a business course for university students, with students finding podcasts to be preferable to their textbook as a learning aid. Al-Fahad (2009) surveyed the attitudes and perceptions of higher education students toward the effectiveness of mobile learning, and found that mobile learning could improve retention among undergraduate and M.D. students. Baya'a and Daher (2009) conducted experiments to explore the effectiveness of mobile learning while using mobile phones in an Arab-language middle school in Israel, and found that students responded positively to the use of mobile phones in learning mathematics.

These positive results are counterbalanced by several neutral or negative findings regarding the effectiveness of mobile learning. Ketamo (2003) developed an adaptive learning environment entitled xTask, with results showing that mobile technologies can generally bring some added value to network-based learning but they cannot replace conventional computers. Doolittle and Mariano (2008) examined the effects of individual differences in working memory capacity (WMC) on learning from an historical inquiry multimedia tutorial in stationary versus mobile learning environments using a portable digital media player, with results showing that students in a stationary instructional environment performed better, while interaction effects indicated that low-WMC students performed most poorly in a mobile instructional environment.

For the second research direction, researchers designed mobile systems to fit their courses. For example, Ullrich, Shen, Tong, and Tan (2010) described the mobile live video learning system (MLVLS) developed at the Shanghai Jiao Tong University for computer sciences courses, and found that mobile devices were significantly more widely used than desktop or laptop computers. de-Marcos et al. (2010) presented an application designed for mobile phones designed to reinforce students' knowledge by means of self-assessment, and found it improved student achievement, especially amongst younger learners, with a relatively low impact on current teaching activities and methodologies. Smørdal and Gregory (2003) reported on a project, KNOWMOBILE, that explored how wireless and mobile technologies (e.g., PDAs) may be useful in medical education and clinical practice, particularly for accessing net-based information, and suggested that PDAs should be regarded as gateways to complicated webs of interdependent technical and social networks.

Two previous literature reviews studied research trends in mobile learning. Hung and Zhang used text mining techniques to investigate research trends in 119 academic articles on mobile learning from 2003 to 2008 taken from the SCI/SSCI database. In general, they investigated publication date, publication category, taxonomy, article clusters, and country, university and journal of origin. Results showed that articles on mobile learning increased from 8 in 2003 to 36 in 2008; the most popular domains in mobile learning studies are effectiveness, evaluation, and personalized systems and studies on strategies and frameworks are more likely to be published.

Hwang and Tsai (2011) reviewed journals (BJET, C&E, ETS, ETR&D, JCAL and IETI) in the SSCI database from 2001 to 2010, selecting 154 articles on mobile and ubiquitous learning, and noting number of articles published, research sample groups selected, research learning domains, and country of origin. Their

findings included the following: the volume of research in mobile and ubiquitous learning greatly

The above-mentioned studies offer syntheses crucial to understanding issues related to mobile learning, but are incomplete. For example, they fail to account for the distribution of research purposes and methods of among the various articles, along with the type of mobile learning devices used. This study adopts a meta-analysis method in examining these trends in mobile learning studies.

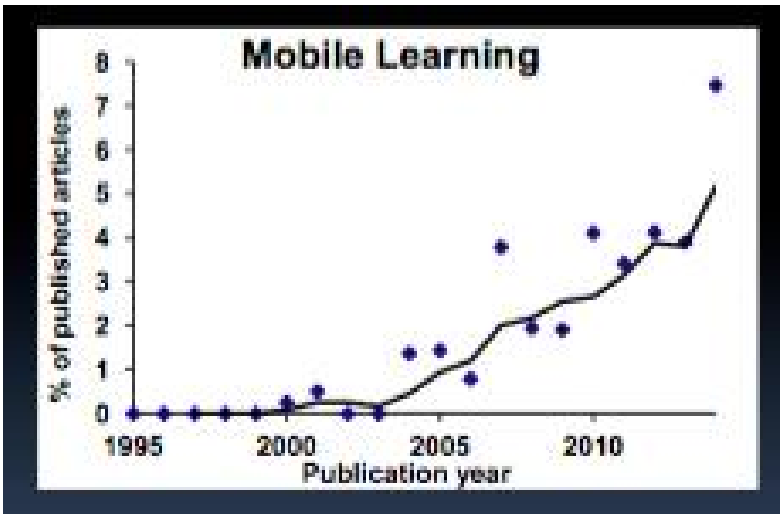

Figure 6: Research Trend in M- Learning 1995 - 2010

Ubiquitous (U) Learning

Mark Weiser coined the term 'Ubiquitous Computing' in the late 1980s. He introduced the idea of ubiquitous computing: a world in which computers and associated technologies become invisible, and thus indistinguishable from everyday life (Weiser, 1991). He also further indicated that Ubiquitous computing is the method of enhancing computer use by making many computers available throughout the physical environment, but making them effectively invisible to the user. Based on the Weiser's view, UC refers to the process of seamlessly integrating computers into the physical world, in which the presence of computers is becoming less conspicuous and will eventually blend into our daily lives. Ubiquitous computing, otherwise known as pervasive computing, is a method of enhancing computer interaction by integrating computers into everyday life; by making computers omnipresent.

Weiser stated; "The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it. This statement captured the essence of ubiquitous computing. He identified three key technologies required for ubiquitous computing; low power computers with convenient displays, software for ubiquitous applications and a network to link them together. Since it was first described by Weiser, ubiquitous computing has become an extremely popular research area and is now at the forefront of new and exciting technologies. With advances in technology come advances in applications, and ubiquitous learning (u-learning) has risen to the

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forefront of education. Ubiquitous learning applies context-aware computing and adaptive learning to provide a novel learning experience.

Of course, the computing and communication technologies required to achieve Weiser's vision did not exist around the late 1980s. But now, presented aspects of a ubiquitous (or pervasive) computing environment in which instances of Weiser's ubiquitous computing world could be explored, given the maturity of computing/communication technologies , such as wireless LANs, portable and wearable computers, and sophisticated embeddable sensors. Briefly described, a ubiquitous computing environment is a well-defined area, open or enclosed, that incorporates a collection of embedded systems (computers, sensors, user interfaces, and infrastructure of services).

From the system point of view, physical integration and spontaneous interoperation are two main characteristics of ubiquitous computing systems. Physical integration means that it involves some integration between computing nodes and the physical world. And spontaneous interoperation means the system must spontaneously interoperate in changing environments. A component interoperates spontaneously if it interacts with a set of communicating components that can change both identity and functionality over time as its circumstances change. From the user's point of view, in such an environment, anyone can make use of computers that are embedded everywhere in a public environment at any time. A user equipped with a mobile device can connect to any of them and access the network by using wireless communication technologies. Moreover, not only can a user access the network actively, but computers around the user can recognize the user's behavior and offer various services according to the user's situation, the mobile terminal's facility, the network bandwidth, and so on. User assistance via ubiquitous computing technologies is realized by providing users with proper decisions or decision alternatives.

That is, a ubiquitous computing technology-equipped system supplies users with timely information and relevant services by automatically sensing users' various context data and smartly generating proper results. So the characteristics of a pervasive computing environment can be mainly concluded as the following: User mobility, Resource and location discovery, Context awareness (user/time/location), Collaborative interaction, Ambient information, Calm technology, Event notification, Adaptive interfaces, Invisibility object augmentation, and Anytime/anywhere. Based on the characteristics of a pervasive computing environment, a number of higher education institutions have begun extensive research projects aimed at investigating with respect to what are a pervasive learning environments. These projects involve new learning spaces, class/instructor/student collaborative interactions, context-aware applications, event notification, enhanced collaboration and decision-making support for administrators and researchers, and more efficient facilities learning. Though not reaching a clear definition until now, it is a more general view that a ubiquitous learning environment is a situation or setting of pervasive (or omnipresent) education (or learning). Education is happening all around the student but the student may not even be conscious of the learning process. Source data is present in the embedded objects and students do not have to DO anything in order to learn and they just have to be there (Jones, 2004).

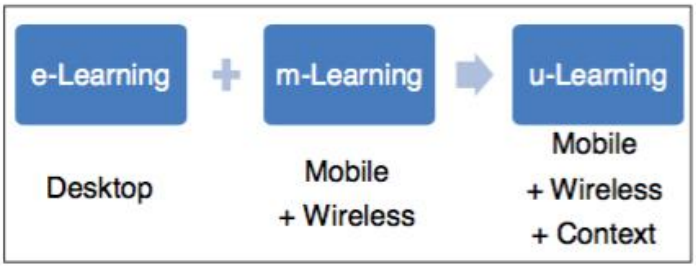

Figure 7: Development of U-Learning

Essentially, U-learning is the extend and advance of E-learning, and also can be viewed as a combination of the advantages of E-learning and M-learning with the benefits of ubiquitous computing and the flexibility of mobile devices. Students have the freedom to learn within a learning environment which offers adaptability to their

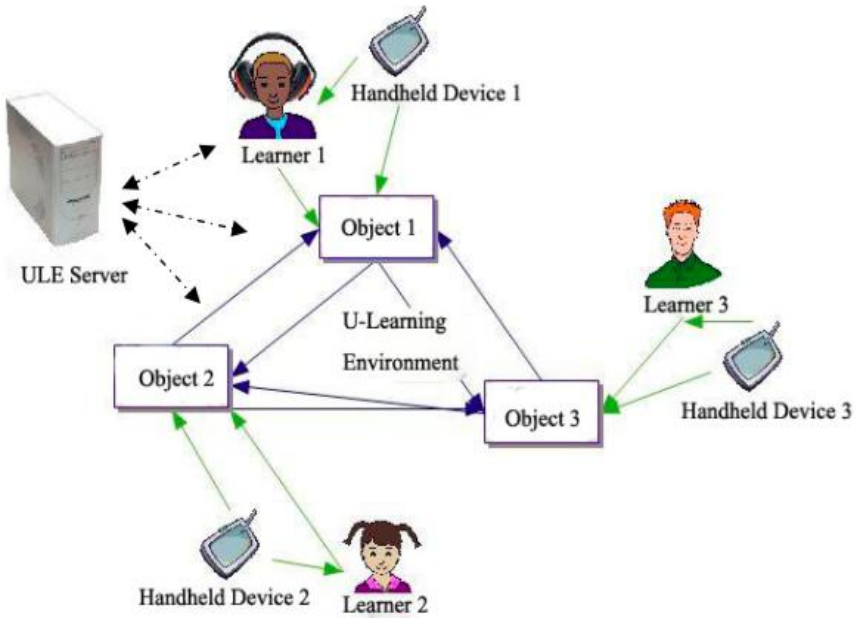

Figure 8: U- Learning Environment

Individual needs and learning styles, as well as the flexibility of pervasive and unobtrusive computer systems. The major characteristics of ubiquitous learning are the following: (1) **Permanency**: Learners never lose their work unless it is purposefully deleted. In addition, all the learning processes are recorded continuously every day; (2) **Accessibility**: Learners have access to their documents, data, or videos from anywhere. That information is provided based on their requests. Therefore, the learning involved is self-directed; (3) **Immediacy**: Wherever learners are, they can get any information immediately. Thus, learners can solve problems quickly. Otherwise, the learner can record the questions and look for the answer later; (4) **Interactivity**: Learners can interact with experts, teachers, or peers in the form of synchronies or asynchronous communication. Hence, the experts are more reachable and the knowledge becomes more available; (5) **Situating of instructional activities**:

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The learning could be embedded in our daily life. The problems encountered as well as the knowledge required are all presented in their natural and authentic forms. This helps learners notice the features of problem situations that make particular actions relevant; (6) **Adaptability**: Learners can get the right information at the right place with the right way.

Computer supported ubiquitous learning (CSUL) is defined as a ubiquitous learning environment that has been integrated into everyday life. A ubiquitous learning environment is a setting of pervasive (omnipresent) learning. Students, especially ones at a young age, learn a considerable amount from their surroundings, often without even realising it. Each student is part of a many-to-one relationship allowing students to collaboratively learn within the ubiquitous space (u-space). A ubiquitous learning environment relies on the constructivist learning theory that states; teachers should not just deliver information, they should provide guidance as well as an explorative learning experience.

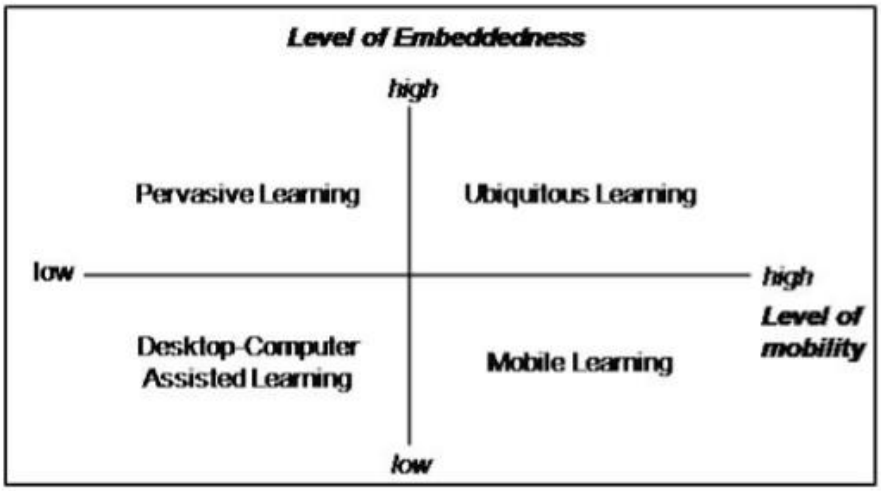

Figure 9: Classification of Learning Environment (Ogata and Yano, 2004)

Ubiquitous learning utilises the mobility of devices providing an omnipresent learning environment. Mobile learning consists of mobile devices wirelessly connecting to the internet, enabling students to learn at any time. Ubiquitous learning builds on this principal by embedding computers in the learner's environment, whilst integrating context-aware learning. While a user is moving with his/her mobile device, the system dynamically updates, providing adaptive learning, by communicating with embedded computers within the environment.

With technology rapidly advancing, it's extremely difficult to predict future electronic learning and computer assisted learning systems. U-learning is still in the development and testing stages and is not quite ready to be integrated into everyday life, so over the next few years a lot of research will be dedicated towards a larger scale ULE.

Another possible future of ubiquitous learning is the introduction of adaptive hypermedia. As opposed to the rigid structure of e-learning systems, whereby the user can access any part of the e-material at any time, adaptive hypermedia (AH) will monitor the student's actions and tailors the information delivered accordingly (based on learner's goals, abilities, interests etc). This concept has been around since the

1990's but is currently still subject to a vast amount of research, with case studies still ongoing.

Ubiquitous learning or u-learning is a new learning paradigm. It is said to be an expansion of previous learning paradigms as we move from conventional learning to electronic-learning (e- learning) and from e-learning to mobile-learning (m-learning) and now we are shifting to u- learning. Three of these major learning paradigms which include e-learning, m-learning and u- learning will be compared in the next section to provide further understanding of the learning concepts.

According to Lyytinen & Yoo (2002), "the evolution of ubiquitous computing has been accelerated by the improvement of wireless telecommunications capabilities, open networks, continued increases in computing power, improved battery technology, and the emergence of flexible software architectures". This leads to u-learning that allows individual learning activities embedded in daily life. However, as mentioned by Hwang (2008), there is no clear definition of u- learning due to rapid changes of the learning environments. Until now, researchers have different views in defining the term "u-learning".

Figure 3 illustrates the classification of four learning environments according to Ogata and Yano (2004) with reference to four dimensions of ubiquitous computing by Lyytinen and Yoo (2002). From the figure, it was observed that the *Desktop-Computer Assisted Learning* systems provide low mobility and low level of embeddedness. Therefore, the learning environment is fixed. Compared to desktop-computer assisted learning, *Mobile Learning* is basically about increasing learners' capability in order to hold together their learning environment, thus enabling them to learn at anytime and anywhere. In *Pervasive Computing*, learner may obtain information from their learning environment via the communication between the embedded devices and environment. However, this makes the availability of pervasive learning are highly localized and limited. These limitations of pervasive learning have been overcome by *Ubiquitous Learning* through the integration of high mobility into the learning environment. The communication between devices and the embedded computers in the environment allows learner to learn while they are moving, hence, attaching them to their learning environment. It is obviously shows that the level of embeddedness and mobility of devices do have a significant impact on the learning environment.

U- Learning Applications

Figure 5 depicts the scenario of u-learning. For instance, when a student gets into the lab or stands in front of an instrument, the devices will sense and detect the situation of the student and transfer the information to the server. All the related rules and procedures will be displayed to the student based on the information received.

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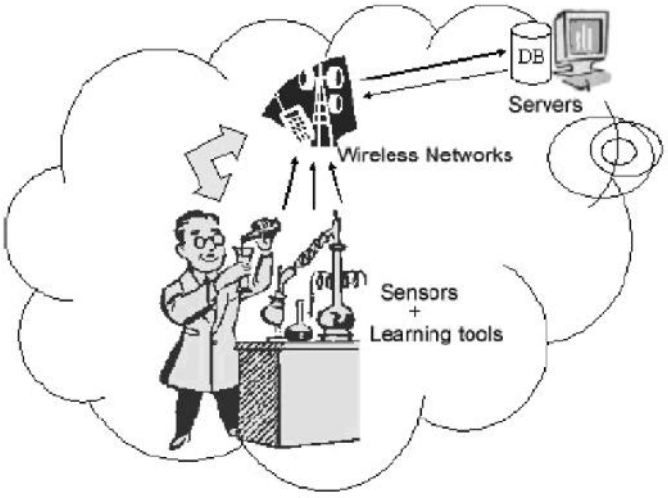

Figure 10: Concept of U- Learning (Kuo et al. 2007)

Currently, ubiquitous learning is carried out in various educational settings and investigated in different directions such as ubiquitous pedagogy, classroom-centered u-learning mode, specific curriculum centered u-learning mode, faculty education for the implementation of u-learning, development standards of u-learning resources and development of u-learning instructional management system (Zhang, 2008).

Most of u-learning applications are extended from ubiquitous computing projects. Ken Sakamura (cited in Sakamura & Koshizuka, 2005) has been leading ubiquitous computing research projects for more than 20 years since 1984. The first ubiquitous computing project is the TRON (The Realtime Operating System Nucleus) Project, which involves the development of a group of real- time operating systems for ubiquitous computing environments. Sakamura proceeded with the Ubiquitous ID Project in 2003 where his team managed to establish new information and communication infrastructure of ubiquitous computing for the 21st century and also developed and deployed the new ubiquitous computing architecture, Ubiquitous ID Architecture that enables various context-aware information services at anytime and anywhere.

In fact, u-learning applications started to bloom in early 2000. In 2004, Hiroaki Ogata together with his team introduced Tag Added Learning Objects (TANGO), a computer which supported ubiquitous learning project for supporting learning in the real world. Later, u-learning applications started to focus on language learning systems such as Japanese Polite Expressions Learning Assisting System (JAPELAS), Japanese Mimicry and Onomatopoeia Learning Assisting System (JAMIOLAS) and Language-learning Outside the Classroom with Handhelds (LOCH). (Ogata & Yano, 2004).

Instead of supporting language learning, u-learning is used to enhance the functions of museums through digital technology. Another important project which utilizes the concept is food traceability project which mainly targets to increase the visibility of total food chain. The traceability function based on u-learning concept is also possible to be applied in drug traceability, which is useful for u-learning of

drugs. Most importantly, the system of u-learning should not be a special system only for ubiquitous learning, but it should be generally used for other applications as well.

Research Focus in U-Learning

Research trend in EMU Learning can be related to the development of the ubiquitous learning (u-learning) to e-learning and m-learning. The ubiquitous learning is tightly connected with the general e-learning progress. The advancement of computing and communication technologies have promoted the learning paradigms from conventional learning to electronic learning (e-learning), from electronic learning to mobile learning (m-learning) and now it is evolving to ubiquitous learning (u-learning).

The E-learning

Garrison (2011) pointed that the term 'e-learning' has come into use in the mid-1990s along with developments in the World Wide Web and interest in asynchronous discussion groups. In late 1990s, e-learning is formally defined as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge. The technological foundation of e-learning is the internet and associated with the communication technologies. With the development of technology, the abundance of resources and relationships made easily accessible via the internet. Wikis, Educational Blog, MOOCS, Virtual World and Podcast are the tools of Web 2.0 providing a platform for the development of e-learning (Gaiyert, 2008).

The M-learning

Taylor (2011) identified that mobile technologies has changed the practice of many people's social life compared to the previous ICTs due to the reason of the previous ICTs were not so intimately connected to the trajectory of a person's social live. This has shown that, the innovation of mobile technologies has made mobile devices become a part of individual's daily life. In the last decade, the ICTs is only used in classroom, however, with this dramatic change in mobile technology, it promotes a new way of learning which mobile learning is. Through the mobility of the devices, learners can perform their learning at anyplace and anywhere. A mobile handheld device makes m-learning and e-learning qualitatively different. This can be observed through the nature of these mobile devices, they lead to an expansion of the spaces and times of learning, where the students can perform their learning outside the places of formal education and also the hours of formal timetables. Besides, mobile learning can also be integrated with non-learning activities such as shopping or entertainment.

The U-learning

The evolution of ubiquitous computing has been accelerated by the improvement of wireless technology and the flexibility of the technology. In general, a widely accepted definition of mobile learning is using mobile technologies to facilitate learning while a popular definition of ubiquitous learning is emphasizing on the learning context where learning can happen at anywhere and anytime with the ubiquitous tools (Hwang, Tsai 2011).

Ubiquitous learning is usually defined as an education system that uses the technologies of ubiquitous computing, wireless communication, mobile devices and context-aware technologies in an educational context. Therefore the u-

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learning placing less emphasis on mobility and contextual independence, but it is more emphasis on the contextualized and situated learning that mobile devices can be provided (Pegrum et al., 2013). In general, defined that u-learning is using mobile devices as the learning tools in accommodating learners' learning style regardless of the constraint of time and space. Thus, in other words, ubiquitous learning can be defined as the application of mobile technology in the learning process at anytime and anywhere.

Mobile Devices and Ubiquitous Learning

Mobile devices can be used to deliver digital textbooks and other educational content to students at anywhere and anytime, and they can effectively contribute to the early growth of ubiquitous learning in education. Beside discovered that the students used mobile technology in school for creating presentations and media, play educational games, and conduct virtual experiments. These activities are more to self-directed and self-paced learning and thus it shows that mobile learning can used to support micro-learning as long as the learning resources are well-designed and developed (Yuan & Guo, 2013).

The Usage Pattern of Mobile Devices

Rideout, Foehr and Roberts (2010) highlighted that over the past five years, the ownership of laptop, cell phone and iPod has increased dramatically. Research has shown that majority of young people now carries devices on which they play games, listen to music, and, in many cases, connect to the internet and watch videos (Rideout, Foehr, & Roberts, 2010). Both *NMC Horizon Report (2012 K-12 Edition)* and Rideout, Foehr and Roberts (2010) have identified that mobile devices become one of the primary ways that the teenagers interact with and learn from each other and rapidly cemented its place as a media delivery platform for young people. Moreover, Lenhart (2013) also found out that the smartphone adoption among the teenagers has increased substantially and mobile access to the internet is pervasive in the *Teens and Technology 2013 report*. In the case study, Vahlberg (2010) summarized that the list of activities of teenagers go online which included commenting on friends' pictures on social networks, commenting on friends' pages or walls, sending private messages on social networks, going online to obtain news about current events and politics, sending instant messages or text messages on social networks, buy things online and sharing content. The finding has shown that cell phone and internet have become ubiquitous in teenagers' daily life.

The Use of Mobile Devices in Learning

Smartphones, tablets and other mobile devices become ubiquitous and are overtaking desktop PCs in popularity, especially with younger users (Pelleg, Savenkov&Agichtein, 2013). Pegrum, Oakley and Faulkner (2013) claimed that a key advantage of smartphones is that many students today already own these devices and carry them with them at all times.

As summarized by Oblinger (2003), the key traits of today's students as being digitally literate, 'always on', mobile , experimental and community oriented (Cobcroft, Towers, Smith, & Bruns, 2006). These students are born in the technology-era; hence, they explore, adapt and use the technologies in different kind ways. Indirectly, the pattern of learning for the generation of digital native has moved towards into the trends of ubiquitous learning and self-paced

learning if they integrate the mobile devices into learning. However, to what extent the mobile devices use for ubiquitous learning by the teenagers is still unknown.

Recent research shows the interest in the use of application of mobile learning. According to Petrova and Li (2009), mobile learning has attracted significant research interest in recent years, the research topics includes the theories underpinning learning design and factors affecting learner experiences and influencing mobile learning adoption including social interaction. Besides, some of the researchers have shown the interest in studying the acceptance and engagement of students towards mobile learning in higher education (Al-Fahad, 2009; Donaldson, 2011; Jairak, Praneetpolgrang, & Mekhabunchakij, 2009; Martini, 2011; Rahamat, Shah, Din, & Aziz, 2011).

Many researchers focus on mobile learning while some researchers have started to investigate the ubiquitous learning over the past few years but the studies were mainly focus on the ubiquitous learning with the context aware support system in designing an environment (Hwang, Yang, Tsai, & Yang, 2009; Jones & Jo, 2004; Ogata & Yano, 2004; Yang, 2006). Although there are some research studies shown that the major usage of the mobile devices among teenagers (Lenhart, 2012; 2013), but little research appears to have an in-depth understanding of teenagers' usage pattern and preference towards the mobile devices in learning. In the meanwhile, research has not examined the perception, attitudes and acceptances towards integration of mobile devices into ubiquitous learning by teenagers. Besides, most of these researches employed the quantitative method in acquiring the outcome. With the innovation of technology, ubiquitous learning by mobile devices has become common and learning can happen on every individual but there was still little qualitative research has done to identify the determinants for teenagers use and preference of using mobile devices in ubiquitous learning.

Perception of Mobile Devices in U-learning among Teenagers

Learning cannot be separated but interwoven from other daily activities. These daily activities include conversation, reading or watching television and they can be the resources and context for learning (Sharples, Taylor et al., 2005). Based on the research conducted by Baya'a and Daher (2009), learners perceived the uses of mobile devices in learning as playful, dynamic and in the nature, moreover, the learners have the opportunity to explore the learning subject independently as well as through the collaboration of team work. Besides that, based on the study done at the Saudi Arabia University by Al-Fahad (2009), the majority of the student indicated that mobile devices with wireless network increase the learners' flexibility in engaging into various types of learning process, therefore, the mobile technologies are perceived as an effective tool in improving communication as well as individual and team learning.

Hussain and Adeeb (2009) also identified that students use different kinds of portable technologies and devices that promote mobility and flexibility in terms of time and place. The study from Rahamat et al. (2011) confirmed that students are technologically, economically and competently ready with the use of mobile technology in their learning. From the article of eSchool News, Devaney (2012) stated that students preferred personalized learning with the use of mobile

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technology. In practice, Malaysia has little qualitative research on the teenagers' perception and attitudes on using mobile devices in performing the ubiquitous learning which is more to self-oriented learning.

Currently, the researches on U-learning are still at its early stage, especially the systematic theories and practice modes researches. But the academic circles have put great emphasis on U-learning and many countries have stepped into the practical applications. Theoretically, the researches on U-learning are carried in the following directions: Ubiquitous pedagogy Classroom-centered U-learning mode Specific curriculum-centered U-learning mode Faculty education for the implementation of U-learning Development standards of U-learning resources Development of U-learning instructional management system. Researches in the higher education have also been carried in many countries. Some representative projects examples are showed in Table 1 below.

Table 1: U-learning projects

University	Project	Network environment	Service content
UCSD	Active campus Active class	Mobile Device （GPS）	Navigation Service, Collaboration work in class
Honnover Univ. (Germany); VTT (Finland)	Ubi-campus	Mobile Devise IR	Navigation Service, Lecture note, Task Assignment
Thokoshima Univ. (Japan)	TANGO/JAPEL ES/CLUE	Mobile Devise（RFID）	learning service,Information exchange between learners
MIT	Oxygen	Tangible Interface, AR, Image based Sensor, RFID	Intelligent Laboratory

The current research is at the transitional stage of from mobile learning to ubiquitous learning. Most of the research, not focusing on the frame-work of U-learning instructional mode, is just the application of ubiquitous technology through the link of ubiquitous computing and education. Last five years, the research was emphasized in both academic and business literatures on hybrid learning. Hybrid learning is dominant in higher education, in corporate and in governmental training settings. It is seen in the linkages between instructors, learners, and classrooms located in different areas. Some researches in hybrid learning have been carried at places such as Microsoft, IBM, Thomson, the University of Pretoria, the University of Glamorgan, National University in California, and the Open University of Malaysia. According to our survey, the current researches are carried around the following questions:

- Does hybrid learning produce better learning outcomes than face-to-face instruction or e-learning alone?
- What models of hybrid learning are most effective?
- What channels of delivery are used to facilitate learning in hybrid mode?
- What are learner and instructor experience and perceptions of hybrid learning?

- What infrastructure and support is needed to support hybrid learning?
- What are the primary barriers associated with hybrid learning? As online environments push into more extensive use in education, the forms and formats of hybrid learning will be extended as well. Hybrid learning has really come into its own and we are seeing a huge trend for integrating different forms of learning to provide real choice for learners. Some predicted trends in hybrid learning include mobile hybrid learning; greater visualization, individualization, and hands-on learning; self-determined hybrid learning; increased connectedness, community, and collaboration; linking work and learning; hybrid learning course designations; and the emergence of hybrid learning specialists (Bonk and Graham, 2005). Of course, there are still many challenges facing the hybrid learning, among of which, creating a formal faculty development program for teaching hybrid courses, allocating the necessary time for instructors to redesign traditional courses into hybrids and preparing students to learn effectively in hybrid courses are most challenging.

Instructional Design Model in U- Learning

The term instructional design is defined as the systematic theory and practice of arranging learning resources, communication technology and content to help learners and teachers transfer knowledge, skill and ability most effectively. The ADDIE model consists of five phases which are: Analysis, design, development, implementation, and evaluation.

In addition, Laroussi (2004) states four levels of hierarchy levels of services in ubiquitous learning which consists of four layers: (1) infrastructures for connectivity and distributed environments, (2) Web-based services, (3) coordination, and (4) pedagogical scenario for mobile learning. In this study, these four layers in ubiquitous learning and the ADDIE model are blended to offer an alternative instructional design model specifically for ubiquitous learning environments.

1. **Analysis:** In this phase, various variables such as learning problem, instructional objectives, learners' needs, existing knowledge, learning environment, delivery options related to learners characteristic and teaching contexts and the timeline for the course are analyzed and identified. In addition, technological infrastructures (e.g., physical devices, network bandwidth, etc.) for connectivity and distribution and web-based services in ubiquitous learning environment are analyzed and identified in this phase.
2. **Design:** In this phase, learning objectives are specified and other issues such as graphic design, user-interface and content are determined.
3. **Development:** In this phase, the actual content and teaching-learning materials are produced or developed. The mobile and wireless learning and communication devices are also supplied in this phase. Besides, ubiquitous computing and educational resources are aggregated and coordinated as a single environment. Furthermore, a pedagogical scenario for mobile learning can be developed in this phase.
4. **Implementation:** In this phase, the plan or scenario, which is designed and developed in prior phases, is implemented. The training materials are distributed to the learners through ubiquitous computing or wireless devices.

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5. **Evaluation:** After implementation and delivery, the effectiveness of the training materials is evaluated. Evaluation phase consists of formative and summative evaluation. Formative evaluation is conducted in every stage of the instructional design model. Summative evaluation, which focuses is on the outcome, contains tests designed for criterion-related referenced items and provides opportunities for feedback from the users or learners.

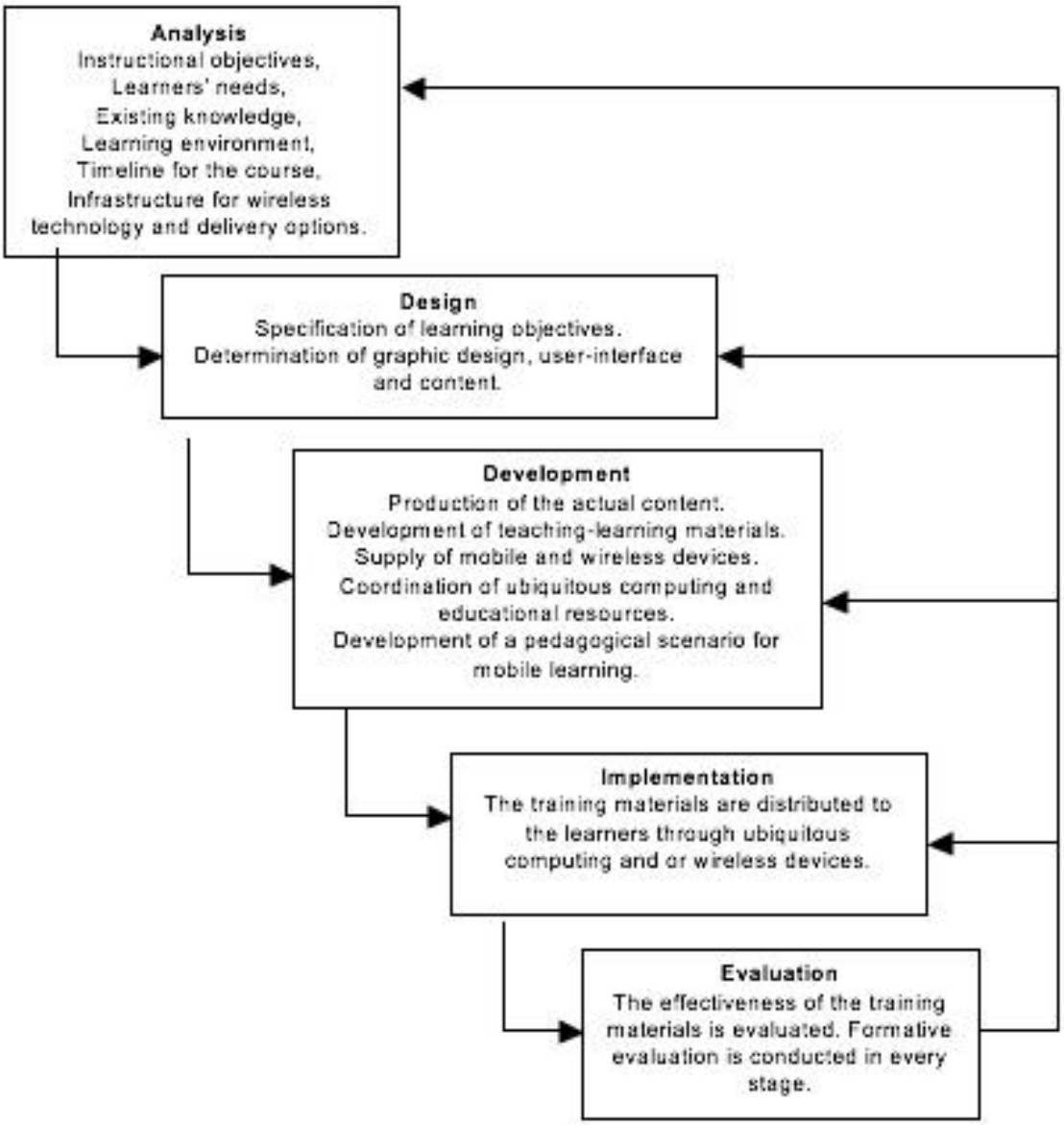

Figure 11: An Instructional Design ADDIE Model

REFERENCES

Casey, D. (2005). u-Learning = e-Learning + m-Learning. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2005*

Georgiev, T., Georgieva, E. & Smrikarov, A. (2004). M-learning – A new stage of e-learning. Proceedings International Conference on Computer Systems and Technologies –CompSysTech', 1-5.

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice* (2nd Ed.). London: Routledge/Taylor and Francis.

Tsai, P., Tsai, C., & Hwang, G. (2011). College students'conceptions of context-aware ubiquitous learning: A phenomenographic analysis. The Internet and Higher Education, 14(3), 137-141.

Kee, Ch'ng Lay, and Zarina Samsudin. Mobile Devices: Toys or Learning Tools for the 21st Century Teenagers?, The Turkish Online Journal of Educational Technology – July 2014, volume 13 issue 3

Kuo, F-R., Hwang, G-J., Chen, Y-J. & Wang, S-L. (2007). Standards and Tools for Context-Aware Ubiquitous Learning. *Proceedings of Seventh IEEE International Conference on Advanced Learning Technologies (ICALT 2007)*

Laroussi, M. (2004). New E-Learnıng Servıces Based On Mobıle And Ubıquıtous Computıng: Ubı-Learn Project. International Conference on Computer Aided Learning in Eneginerring Education.

Low, L. & O'Connell, M. (2006). Learner-centric design of digital mobile learning. OnlineLearning and Teaching Conference – OLT Conference 2006. 26 September, Brisbane,Australia.

Murray, C.; Currant, N., E-portfolios along the Lifelong Learning Cycle: Differences between Use, Pedagogy and Context, Sixth International Conference on Advanced Learning Technologies, 2006., pp.491-493

Ogata, H., Akamatsu, R. & Yano, Y. (2004). *Computer Supported Ubiquitous Learning Environment for Vocabulary Learning Using RFID Tags*, TEL2004 (Technology Enhanced Learning 2004)

Pegrum, M., Oakley, G., & Faulkner, R. (2013). Schools going mobile: A study of the adoption of mobile handheld technologies in Western Australian independent schools. *Australasian Journal of Educational Technology*, *29*(1).

Song, X; Zong, H., Research of Ubiquitous Learning Application Environment, Seventh International Conference on Web-based Learning, 2008, ICWL 2008, pp.37-40, 20-22 Aug. 2008

Stahl, G; Koschmann, T; Suthers, D., Computer-Supported Collaborative Learning: An historical Perspective. In R. K. Sawyer (Ed.), Cambridge handbook of the learning sciences, pp. 409-426, 2006

Suppes, P; Jerman, M., Computer-Assisted Instruction at Stanford. Educational Television International, vol.3, pp.176-179, 1969

Jones, V., Jo, J.H.: Ubiquitous learning environment: An adaptive teaching system using ubiquitous technology. In R. Atkinson, C., McBeath, D., Jonas-Dwyer,

ISBN 978-602-73030-1-0

R. Phillips (eds.) Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference, pp. 468--474. Perth, 5-8, December (2004)

Kumar , S., E and M Learning: A Comparative Study, International Journal on New Trend in Education and Their Implications, July 2013 Volume: 4 Issue: 3 Articlle: 08 ISSN 1309-6249

Taylor, C. (2011). The Mobile Literacy Practices of Adolescents: An Ethnographic Study. Vahlberg, V. (2010). Fitting Into Their Lives: A Survey of Three Studies About Youth Media Use. *Newspaper Association of America Foundation*.

Weiser, M., Hot topics-ubiquitous computing, Computer, vol.26, no.10, pp.71-72, Oct 1993

Yuan, X., & Guo, G. (2013). Exploration on the Design and Development of Micro Mobile Learning Resources. In *2013 the International Conference on Education Technology and Information System (ICETIS 2013)*. Atlantis Press.

AN IDEA INSTRUCTIONAL STRATEGYFOR INCLUSIVE EDUCATION

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Abstract

Schools that accommodate differences among learners in a class with the same service commonly known as inclusion school. This theory study offers an idea of what learning strategies that can be set for inclusive education. I call it a continuation of the NEW RULES SET learning scenarios, namely: set the theme of learning by asking simple questions interesting and important; Analysis of learning objectives, namely: selecting a keyword to find information and assign resources; Auxiliary roaming: selecting the best information and write it in their own words; The formulation of the presentation, namely: where ensure attractive presentation, clear, easy to read, easy to see or hear; and feedback, namely: check what has changed while you are learning through NEW RULES. This notion refers to the views Jonassen about problem solving and assessment rubrics for integrated thematic learning strategies of Warren Grive.

INTRODUCTION

Basically, every child has the right to live and socialize with others in the difference. Every child has the right to look at the environment, and every child has the right to obtain the same service-learning with other students in the classroom, and every child deserves the opportunity to learn throughout life. The basic principles of life for a child will be realized when all rights of the child obtained or given adequate facilities by the general public, especially service learning in the classroom, so that the potential of every child can grow and develop (physical and mental) optimally in difference. Schools that accommodate differences among the children in the class with the same service commonly known as inclusion school. According to Stainback as quoted Suparno (2010: 2) inclusion school is a school that caters to all students in the same class. This school provides education programs tailored to the capabilities and needs every learner, and teacher support that can be given to achieve success. The question is "what learning strategies need to be designed for educational inclusion, so that all students can achieve the expected competencies effectively and efficiently?". To answer these questions, the following I try to study theory and thematic integrative learning strategy for inclusive education. Often we are less interested in something (small). We are more interested in something big and have an influence on life. Your little one can lend itself to various activities of inter-connection and become a big theme. If we find interconnecting theme of "small", you will get a lot of things, including: small animal, small islands, small, small child, small fish, small house, small trees, and so on.

Let's start by compiling a number of questions. Do you know about the "small" ?, What will you find on small? What keywords are associated with small? What are the goals you are looking for a small information? What information do you need? Seek information through sources what information? From where you should start to sort, select and organize information? How do you get the information? Do

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share information with others. How well do you gather information? What did you learn during the search for information? And into what?

The questions were posed to the theme of "small" to become open various issues related to the theme of "minor". For example we take the sub-theme "ants small their" small but strong, how do they do it? After a long discussion between the leaders of small ants, even they have each tried various ways eventually was found an appropriate strategy that didalamnnya existing operational measures, methods, media, and the time required. Finally the little ant found a learning strategy that can be used to solve the problem, ie the cooperation among members of a small ant or we call "collborative learning". It turned out that the strategy of "collborative learning" since long ago been used by their ancestors. Now, in the 21st century is also called the era of knowledge Knowledge Age, the strategy of "collborative learning" is still appropriate for use in solving problems.

Let's proceed, if "small" we associate with water to the "air small", the question is "how can we use water se" small "as possible so that we can preserve the environment?" questions like can also be submitted to "electric small" how we can use electricity as small as possible, so that we can preserve the environment? if "small" is connected to the business world into 'small ", the question is" why they "small" can be developed rapidly in recent years? "if" small "is connected with the sport into" the small ", the question is" in sport what the players are smaller better? "if" small "we associate with worship being" worship small ", the question" why did god almighty is more like "worship small" but continuous? "if" small "is connected to the ad being" advertisement small ", the question is" how to make "advertising small" as much as possible in a single page of a newspaper, but interesting for the readers? "if" small "is connected with the painting became" painting small ", the question" what special challenges in producing painting small? "if "small" is connected with the thought or the idea of being "ide small", the question is "how to make" ide small "new every day?" if "small" is connected with the story being "stories small", the question is "how to make" story small "new little story associated with previously? ", and so on.

Noting the above description, it appears that the development of the theme into sub-themes is the power of teachers to expand the ideas and content. Teachers can start with the concept, objectives, materials, and time. Teachers can ask students what they like? Student responses will vary in each class. In addition, students should be allowed to evaluate their learning and learning content.

Through a variety of activities and experiences, differentiation is provided as a natural approach is not in a moment in the group. Students develop a deeper understanding, a sense of ownership in the study, and were able to explore new concepts as activities reach all learning modalities. The teacher's role in managing the learning process in the 21st century demanded to develop learning strategies that can facilitate the interaction between students and students, students with teachers, students with learning materials, student groups, and students with learning programs. Interaction intended to solve the problem meaningfully resolved collectively or "collaborative". Learning activities collaborative students got an assignment to do research or projects. Measures implemented during the research process begin by selecting a theme. Then set the learning scenarios, analyze the learning objectives, auxiliary cruising, the formulation of the presentation, and feedback. Therefore these

measures, then assessment using a rubric. In addition to collaborative learning, learning in the 21st century also take advantage of information and communication technology (ICT) in various midwife life. Starting from the electronic mail (electronic mail / email), Identity Card (KTP) or e-ID card, purchase of air ticket online or ticketing-online, obtain books online or electronic book (e-book), etc. , In other words, we are now in the information and communication technology environment. This environment provides a wide range of products of ICT facilities in performing daily activities. Therefore a change in living habits in using ICT as a tool products intelligently to solve the problem significantly.

Almost every person in the 21st century has made ICT equipment as a tool to solve the problem and be done with mutual cooperation or collaboration. What is the role of educational technology in this knowledge era? Technology in education is by definition in 2008, is: "Educational Technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing Appropriate technological processes and resources" (Alan, 2008: 1). According to this definition, the educational technologist must be able to develop a variety of learning strategies appropriate to the era of knowledge to facilitate student learning so that there is an increase in performance (good or better) to achieve a predetermined competence. How competence of the educators currently associated with the ability to develop learning strategies? Those of teachers in the country today, it is generally not used to create a learning strategy in which diampunya matapelajaran. This is evident from my record in 2013 at the time to train teachers for vocational and Industrial Technology in Education and Training Professional Teachers (PLPG). Generally, the teachers still use learning strategies with deductive or inductive method. It informs us that there are still friends teachers who already live in the era of knowledge but not using attributes in this era. While the demands of life in the 21st century or the era of knowledge already so grown mainly in managing the learning process. In considering the inclusion of education for the 21st century, "What shall we do?". Harasim (2013: 13) identifies what he called RIP (Really Important Problems), one of which is "how best to provide effective and efficient teaching and learning for all children". A topic consequence, he writes, is the role of technology in education, given the tremendous impact of technology in society. He writes: "In addition to electrification, class today so unchanged from the end of the 19th century. Character actors virtually unchanged activity, along with the length of the school day and year, and some of the parameters other. School has thwarted numerous innovations, radio, television, and even the presence of a phone in the classroom ". This is an important issue that invites new learning theories associated with the practice, context and technology. In other words we need a learning strategy that can meet the needs of the 21st century learning in the learning strategy?To determine whether the learning strategy, let us consider learning principles konstruktivismne. Three basic principles of constructivist design theory (ie: a personal interpretation on experiences, active, realistic and relevant context, as well as the exploration of a variety of perspectives) has implications for practitioners of instructional design (instructional design). How the application of constructivism in the selection of learning strategies ? Systematic and constructivist approach to instructional design had a different analysis, designers with both points of view to understand the importance of choosing a learning strategy based on how people learn.

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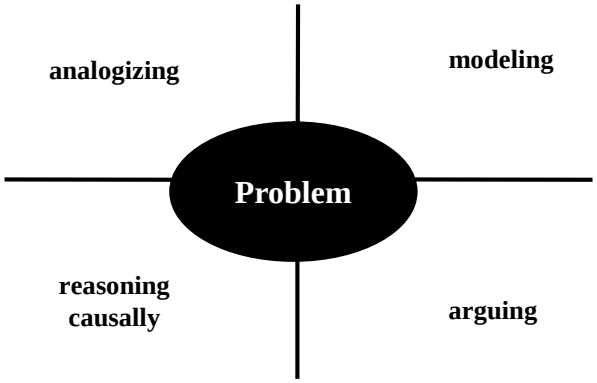
Below, we discuss some of the strategies that are commonly associated with constructivist principles.

Gagne said learning strategies (2005: 226), is a tool or technique available to educators and instructional designers to design and facilitate learning. A learning strategy according Rothwel (2004: 221) as a whole plans to regulate the learning content (what is to be taught?), And the process (how it will be taught?). Learning strategies defined by Branch (2009: 85) as the organization and sequence of learning activities. Learning strategies used generically to cover various aspects of choosing the delivery system as said Walter Dick (2009: 166) include, the order and grouping of group learning content, describes the learning components that will be included in the study, determining how the students will be grouped during the learning process, building the structure of the lesson, and select media to manage learning. Meanwhile, according to Atwi (2012: 241) regarding the instructional strategy approach to managing content and instructional process in a comprehensive manner to achieve one or a group of instructional objectives. Wherein the sequence of learning activities, an outline of the contents, methods, media and tools, and learning time (in minutes).

Meanwhile integrated thematic learning strategy, in my opinion is part of the learning colaborative perspective that emphasizes the collection, such as: construct knowledge together (work together to solve a problem); negotiations in the search for alternative solutions through argument, debate; and interdependence among students and teachers as a learning resource. According to Dabbagh (2005: 45), the skills developed include: 1) social learning skills: the skills to support decision making, communication, confidence-building and conflict management; 2) dialogic skills: the ability to discuss issues, share and debate ideas, negotiate meaning, open to multiple perspectives, good articulation and learning skills; 3) Self and group evaluation skills: active in the group, doing a fair share of the work, and helping other group members to demonstrate learning achievement; 4) reflection skills: the ability to implement substantive consideration and assessment not only on the personal learning process and results, but also groups.

While Jonassen (2013: 287-289) argues that the problem solving, the analogy, modeling, causal reasoning, and arguing is the most powerful mode of thinking that leads to the most meaningful learning. This is the most exciting learning activities and cognitive epistemic productive that students can complete. All are equipped with cognitive load and other cognitive challenges. He described it in the fisrt principle of learning:



Analogizing, useful to learn to solve problems. The main objective to learn to solve problems such transfer, developing the ability to solve related problems. Although the transfer conceptions vary dramatically, problem solving displacement means that students can solve similar problems when encountered. Modeling, is a powerful strategy to engage, support and assess the conceptual change in students for help and externalize this model, internal mental models by providing several formalisms to represent the conceptual understanding and change. Reasoning Causally, allows us to make predictions, draw implications, making inferences, and articulate explanations. Arguing, has been shown to support learning to solve the problem either structured or unstructured.

Having regard to the views of experts as explained earlier, the development of learning strategies aimed at facilitating the interaction between students, students with teachers, students with the subject matter, students with kelomook, and students with learning programs, a strategy to resolve issues by developing four variables problem, namely: analogizing components, modeling, reasoning causally, and arguing. While the ability of students to be able to do dilakasanakan through collaborative learning, which requires four individual skills, namely: social learning skills, dialogic skills, your self evaluation group skills, and reflection skills.

AN IDEA LEARNING STRATEGY FOR INCLUSIVE EDUCATION

To develop an integrated thematic learning strategy on inclusive education, according to my students is facilitated by five (5) steps as follows:

NEW RULES	QUESTIONS PROPOSED
NEW RULES 1 (SET learning scenarios)	a. Think about your theme. b. What do you already know? c. What you need to find out? d. Ask a simple question! e. Write down the questions you want to answer. f. Does your answer would be interesting? g. Which questions are most important? h. Discuss your questions with the teacher.

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NEW RULES 2 (Analysis of learning objectives)	a. Underlining KEYWORDS in your question b. To help you find information. c. Where you will find the information? d. Library - encyclopedia, part non-fiction, newspapers. Internet, Interviews, see DVD e. You can rewrite some of your questions, if you can not find enough information.
NEW RULES3 (auxiliary cruising)	a. Choose the best information. b. Check all of your questions have answers. c. Write it in your own words. d. Think about how you will present your work. e. Sort and organize. f. Be a great explorer!
NEW RULES4 (Formulation percentage)	a. Determine how you get information. b. Putting all the information together. c. Make a list of sources where you obtained the information. d. Make sure your presentation interesting. e. Is your information clearly displayed properly, f. Colorful, easy to read, easy to see or hear?
NEW RULES 5 (feedback)	a. Now that you've finished b. How well do your presentation? c. Do people understand what yousay? d. Are they interested? e. What is the feedback from your friends? f. What did you learn? g. What changed when you perform learning through NEW RULES? h. What will you do on the following learning activities?

Thus, I hope that this simple idea can open up space for discussion on how to develop learning strategies iklusi education in the future, especially in facilitating student learning so that performance becomes better. Here I attach the idea of an assessment rubric for integrated thematic learning strategies adopted from Warren Grive.

GUIDELINES SECTION Assessment process NEW RULES

NEW RULES: Implement Research / Projects (for Junior High School)

Name/Class :

NEW RULES1: Set learning scenarios
Write your topic here

Topic/Theme/What do you investigate/Main question.

.....

.....

What other simple questions that will help you get answers from the main question?

Show me your class

	Beginners 1-4	**Developing 5-7**	**Competent 8-10**
NEW RULES1 Select a topic. Can make good questions	Needs lotshelp from an adult. A simple question	Need some help from an adult. The most fundamental question	Free to create a simple question

NEW RULES 2 (Analysis of learning objectives)
Plan how you will reach your destination, where you will find the information? Make a list of KEYWORDS.

SOURCE, ACTION PLAN	**KEYWORD**

	Beginners 1-4	**Developing 5-7**	**Competent 8-10**
NEW RULES 2 (Analysis of learning objectives) Planning, Decided Source	It takes a lot of help with keywords 1-2 resources. It takes a lot of help to find resources.	Needing help with keywords. Found 3-5 resources. Need help finding resources.	Free / confidence planned in detail. Choose / find the best resources.

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NEW RULES 3(Help roaming)
Select information. Sort, select, organize. Write your own words.

	Beginners 1-4	**Developing 5-7**	**Competent 8-10**
NEW RULES 3 (Help roaming) Looking. Choose	Selecting and organized information. The material is missedbig questions. Too little is written.	Question answered. organizing the material The material reflects some mind.	Original thinking. Detailed answers. Information is well organized.

NEW RULES 4 (Formulation presentation)
How will you present your findings? Is the layout clear? Is it interesting and attractive?

	Beginners 1-4	**Developing 5-7**	**Competent 8-10**
NEW RULES4 (Formulation presentation) Informasi, Presentasi.	Some thoughts. Quite a few mistakes. It takes effort to Presenting Information.	The presentation is clear. There are some errors examinationGood effort bypresentation.	The presentation is excellent. The information is clear and easy see / hear / understand. Creative.

NEW RULES 5(Feedback)

Write down what you have learned about NEW RULES. What did you change during carrying out research / project? What will you do the next meeting?

	Beginners 1-4	**Developing 5-7**	**Competent 8-10**
NEW RULES 5 Feedback Reflecting your research process	Some thoughts. Some errors. The presentation still needs effort.	The presentation is clear. Some error checking Need a better effort in the presentation.	The presentation is excellent. The information is clear and easily seen / heard / understood. Creative.

Project name		TOTAL ..... %
Type Presentation		
Comment		

REFERENCES

Branch, Robert Maribe. (2009). *Instructional Design : The ADDIE Approach.* New York: Springer.

Dabbagh, Nada, Ritland, Brenda Bannan (2005). *Online Learning: Conceps, Strategies, and Application.* New Jersey: Person Education, Inc.

Dick, Walter., Carey, Lou., and Carey, James O. (2009). *The Systematic Design of Instruction*. New Jersey: Pearson.

Gagne, Robert M., Wager, Walter W., Golas, Katharine C., Keller, Jhon M. (2005). *Principles of Instructional Design*. (5th ed). Belmont, CA: Wadsworth/Thomson Learning.

Harasim, Linda (2012). *Learning Theory and Online Technologies*. New York: Routledge.

http://www.in2edu.com/info/about_us.html,Warren Grieve.

Januszewski, Alan & Michael Molenda (2008). *Educational Technology. A Definition with Commentary*. New York: Lawrence Erlbaum Ass.

Jonassen, David H (2013). *Learning, Problem Solving, and Mindtools.* New York: Routledge Taylor & Francis Group.

Rothwel, Wiliam J., and Kazanas, H.C. (2004). *Mastering the Instruction Design Process: A Systematic Approach*. USA:Pfeiffer.

Suparman, Atwi (2012). *Desain Instruksional Modern*. Panduan Para Pengajar & Inovator Pendidikan. Jakarta: Erlangga.

Suparno. (2010). *Buku Panduan Pendidikan Inklusif Untuk Anak Usia Dini di Taman Kanak-Kanak*. Yogyakarta: Prodi PLB FIP UNY.

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ELECTRONIC & MOBILE LEARNING DESIGN

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M-LEARNING DESIGN: INTEGRATION DISCOVERY LEARNING METHOD IN MOBILE APPLICATION

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Abstract

Developing of information communication and technology (ICT) influenced in various fields, including for efficiency of the learning process. Most of people in Indonesia use mobile technology such as smartphone or tablet as a means of communication or computing. The educational field continues to move dynamically, particularly in the creation of media, methods, and more interactive learning materials. One alternative learning model that was developed in the education system in Indonesia is mobile learning. Discovery learning is a method of learning which is in the learning process; learners acquire knowledge by themselves instead of the information presented by the teacher. In discovery learning, the process of learning is designed so that students can find the concept of the learning material through his own mental processes.

There are several stages in the discovery learning, they are stimulus, problem statement, data collection, data processing, verification, generalization. Integrate the application of discovery learning by utilizing mobile learning becomes a learning method that is expected can facilitate the students to understand the material. There are many features in the mobile internet access, cameras, recorders, etc. which can be used to facilitate the learning process. The design of e-learning site which can facilitate learning with additional feature like guidance, exercises and quizzes that can direct learners to find material, with several advantages including a facility desktop notifications that can serve as a reminder and can be accessed using a mobile is expected can be an interested way to learn for Indonesian students.

Keywords: mobile learning, e-learning, discovery learning, learning

INTRODUCTION

Information technology presents many new tools and approaches that expand the infrastructure in the educational process. The Internet can provide substantial benefits for education, research, commerce, and other aspects of life. Internet can be used as an important tool to help education, increasing knowledge, and expand the opportunities and empowerment in achieving a better quality of life.

Teaching students with an idea of finding, critical thinking, questioning, and problem solving skills is one of the main principles of science and technology learning (Balim, 2009). Thus, knowledge, learning and the curriculum should be designed appropriate with technological developments. Students who are familiar with the technology will be able to ask and solve the problems they face in their lives. One method that is expected to support this is by implementing discovery learning.

The rapid development of ICT has generated an online education system. Integration between the teaching models with architectural reliability of technological progress becomes an idea challenged educators to improve efficiency in order to achieve learning objectives learning process. One alternative learning model that was developed in the education system in Indonesia is mobile learning.

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LITERATURE REVIEW

Discovery Learning

A Method of discovery learning was introduced by Jerome S Bruner, one of the experts in the cognitive learning psychology. Bruner stated that "learning happens by discovery, which prioritizes reflection, thinking, experimenting, and exploring. People who use self discovery in learning turn out to be more self confident (Bruner, 1961)". Discovery is how to find information by themselves, not a transfer of information from the teacher. Bruner emphasizes "Essentially the technique of discovery, is that the child generates information on his own, which he can then check or Evaluate against the sources, getting more new information in the process (Bruner, 1999)" Budiningsih stated that method of discovery learning is to understand the concept, meaning, and relationship, through an intuitive process to finally come to a conclusion (Budiningsih, 2005).

It can be concluded that in discovery learning is designed so that students can find the concepts in the learning material through his own mental process. The process of mental activity can be through exchange opinions, to discuss, read yourself and try it yourself, observing, classifying, making allegations, making the analysis, describe and draw conclusions.

Mobile Learning

Mobile learning is a term used to describe the use of e-learning on the move (France et al., 2015). The use of mobile to facilitate the learning process can be a trend, it was confirmed by Pachler et al., "Mobile learning is an emerging, and rapidly expanding field of educational research and practice across schools, colleges and universities as well as in the work place (Pahler et al., 2010)". Hulmse stated that:

> *"What is new in 'mobile learning' comes from the possibilities opened up by portable, lightweight devices that are sometimes small enough to fit in a pocket or in the palm of one's hand. Typical examples are mobile phones (also called cell phones or hand phones), smartphones, palmtops and handheld computers (Personal Digital Assistants or PDAs); Tablet PCs, laptop computers and personal media players can also fall within its scope"* (Kulkulska-Hulmes & Taxler, 2005)

Thus, mobile learning can be expressed an electronic learning processes using mobile devices such as mobile phone, smartphone or PDA as a medium.

The Development of Mobile Users in Indonesia

The user of smartphone in Indonesia is also growing rapidly. Digital marketing research agency eMarketer estimates that by 2018 the number of active users of Smartphone in Indonesia will be more than 100 million people.

Top 25 Countries, Ranked by Internet Users, 2013-2018
millions

	2013	2014	2015	2016	2017	2018
1. China*	620.7	643.6	669.8	700.1	736.2	777.0
2. US**	246.0	252.9	259.3	264.9	269.7	274.1
3. India	167.2	215.6	252.3	283.8	313.8	346.3
4. Brazil	99.2	107.7	113.7	119.8	123.3	125.9
5. Japan	100.0	102.1	103.6	104.5	105.0	105.4
6. Indonesia	72.8	83.7	93.4	102.8	112.6	123.0
7. Russia	77.5	82.9	87.3	91.4	94.3	96.6
8. Germany	59.5	61.6	62.2	62.5	62.7	62.7
9. Mexico	53.1	59.4	65.1	70.7	75.7	80.4
10. Nigeria	51.8	57.7	63.2	69.1	76.2	84.3
11. UK**	48.8	50.1	51.3	52.4	53.4	54.3
12. France	48.8	49.7	50.5	51.2	51.9	52.5
13. Philippines	42.3	48.0	53.7	59.1	64.5	69.3
14. Turkey	36.6	41.0	44.7	47.7	50.7	53.5
15. Vietnam	36.6	40.5	44.4	48.2	52.1	55.8
16. South Korea	40.1	40.4	40.6	40.7	40.9	41.0
17. Egypt	34.1	36.0	38.3	40.9	43.9	47.4
18. Italy	34.5	35.8	36.2	37.2	37.5	37.7
19. Spain	30.5	31.6	32.3	33.0	33.5	33.9
20. Canada	27.7	28.3	28.8	29.4	29.9	30.4
21. Argentina	25.0	27.1	29.0	29.8	30.5	31.1
22. Colombia	24.2	26.5	28.6	29.4	30.5	31.3
23. Thailand	22.7	24.3	26.0	27.6	29.1	30.6
24. Poland	22.6	22.9	23.3	23.7	24.0	24.3
25. South Africa	20.1	22.7	25.0	27.2	29.2	30.9
Worldwide* **	**2.692.9**	**2.892.7**	**3.072.6**	**3.246.3**	**3.419.9**	**3.600.2**

*Note: individuals of any age who use the Internet from any location via any device at least once per month; *excludes Hong Kong; **forecast from Aug 2014; ***includes countries not listed*
Source: eMarketer, Nov 2014
181948 www.eMarketer.com

Source www.emarketer.com

With that amount, Indonesia will become fourth largest country in the world after China, India, and America in using Smartphone. In a survey conducted in 2014 Indonesia became the sixth largest country in accessing the internet.

Almost all the teachers and students using a mobile phone/Smartphone as a communication tool. They access information using a mobile device moves because it is more accessible. This condition can be utilized to create a learning model that uses mobile as a medium. McQuiggan stated that mobile technology provides many benefits that enable learners obtain a more meaningful learning experience "*mobile technology offers a plethora of features and benefits that enable it to break the educational system wide open, engaging students in new ways and making educational experiences more meaningful, if schools can effectively utilize structured, integrated approaches for implementation of this new technology"* (*McQuiggan et al., 2015).*

Integration Discovery Learning Method in Mobile Application

Design of discovery learning is made in the form of website that can be accessed using a smartphone or mobile phone. This site serves as an e-learning which has a range of facilities such as providing information, send and receive data, chat or teleconference but the access is closed only between learners and teachers. This site presents the material/information in accordance with the design of the syllabus with added menu like instructions, exercises and assignments. This design equipped with a desktop application that can provide notification if there is new information on the lesson page. The steps in discovery learning are as follows:

a. *Stimulus*
Stimulus can be a video or an animation that will be followed by questions and this will be the beginning of the process of problem identification.

b. Problem Statement
Identify the problem will appear in the form of questions followed by a narration. Intonation of the narration, character of text will be appropriated to the age of users/learners in this study.

c. Data Collection
The site will provide instructions and guidance on ways of collecting data, for example through observation, the observation process must be done by learners in real condition and documented the process of observation using photograph. Shooting and take picture can be done by utilizing mobile media. The process of

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attaching a picture as proof observation can also attach via mobiles. Data collection can also be done with the interview, when this process had to do with a real student, interviews can be conducted with people around and the recorded evidence can also be taken using mobile. The page will give you a hint about who could be interviewed. Besides the data collection process can also be done by accessing a video about the material that has been provided.

d. Data Processing

Data Processing is the stage where the data that has been obtained is processed. In this step, learners make allegations of data that has been collected. Hypotheses can be written in the form of a simple report adjusted to the age of learners. This report can be given to teachers in the form of a file that is sent through a website or given through face to face meetings. But at this step it is advisable to do face to face, because here more students are expected to describe the conclusion of the assumptions of the above findings obtained by the students.

e. Verification

Verification is done by conducting a detailed examination to prove the hypothesis made previously. Here the teacher gives feedback when students make mistakes so that they get the right information associated with the materials they found. Besides that, teacher uploaded material in website to facilitate students repeat material.

f. Generalization

A conclusion made with regard to the outcome of verification. This conclusion made after students findings get feedback from teachers. So that mistakes in conducting hypothesis has been revised.

CONCLUSION

Mobile learning by integrating discovery learning into mobile menu can be an alternative method of learning in Indonesia society. Teachers/educators can implement blended learning as a means of bridging the needs of students for technology, to apply learning by self join. It suggested to use blended learning because as perfect as any media still needed a process of interaction between teachers and students.

REFERENCES

Andreicheva, Liliya & Latypov, Rustam. (2015). Design of E-Learning System: M-Learning Component. *Procedia-social and behavior Sciences journal: Vol. 191* (pp. 628-633).

Balım, A., G. (2009). The Effects of Discovery Learning on Students' Success and Inquiry Learning Skill. *Eurasian Journal of Educational Research: Issue 35, Spring 2009* (pp. 1-20).

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review* (pp. 21–32).

Bruner, J. S. (1999). *The Process of Education. The president and fellows of Harvard College*. USA: Twenty fifth printing.

Budiningsih, Asri. (2005). *Belajar & Pembelajaran*. Jakarta: Rineka Cipta.

Emarketer. (2014). Internet to Hit 3 Billion Users in 2015. *Retrieved from* https://www.emarketer.com *Accessed 10th July 2016.*

France, Darek W., Whalley, Brian., Mauchline, Alice., Powell, Victoria., Welsh, Katharine. Lerczak, Alex., Park, Julian Bednarz, Robert. (2015). *Enhancing Fieldwork Learning using Mobile Technology*. London: Springer.

Kulkulska-Hulmes, Agnes & Traxler John. (2005). *Mobile learning. A handbook for Educators and Trainers*. New York: Routledge.

McQuiggan, Scott., Kosturko, Lucy., McQuiggan, Jamie., Sabourin, Jennifer. (2015). *Mobile Learning: A Handbook for Developers, Educators, and Learners*. New Jersey: John Wiley & Sons, Inc.

Pachler, Norbert., Bachmair, Ben., Cook, John. (2010). *Mobile Learning: structure, Agency and Practice*. London: Springer.

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HUMAN RESOURCE NEEDS ANALYSIS FOR MANAGER OF MOBILE LEARNING

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Abstract

Collaboration between mobile computing technology and e-learning has spawned a mobile learning (m-learning), which is expected by many experts to be the most developed learning technologies in the future. Besides the availability of technology, one of the success factors of management education is the availability of human resources who have the capacity and capability to manage these technologies. Likewise with the management of m-learning. This article examines the need for human resources managers of m-learning in order to produce learning-based m-learning that good and sustainable. Results from this study is the completion of a needs analysis of HR managers of m-learning based on m-learning organization at a minimum, as well as 3 of 6 information resulting from implementation of job analysis procedures.

Keywords: Human Resources Management, *m-learning*, job analysis

INTRODUCTION

Human resources (HR) are one of the important components in mobile learning (m-learning). Management of the human resources will affect the successful implementation of m-learning. Whichever model applied learning, HR is the actors in the learning process. In the human resources involved conventional learning composed of teachers, students, and school administrators. So in learning m-learning human resources involved more.

Human resources required in m-learning are not only teachers or lecturers, students and school administrators, but there is a special team to handle m-learning which has a special organizational structure as well. Within the organization there is a specific unit or section that requires specific skills. In order for m-learning can be managed properly, then in addition to the organization established or improved, are also preparing appropriate human resources and have the required skills.

This article will analyze the needs of human resources managers of m-learning in higher education based on the study of literature. Studies cover the concept of m-learning, m-learning management organization suggested, HR management, and analysis of human resources needs to manage m-learning.

STUDY LITERATURE

M-Learning

The spread of mobile devices very quickly lead to mobile-learning is becoming a potential in supporting education in the future. M-learning utilize the tools that are available and owned by some people. So it can be said that m-learning is a wedge between the wireless network computing and communication devices as well as e-learning (Beutner & Pechuel, n.d.). Behera (2013) made a shorter definition that m-learning is the incorporation of e-learning and mobile computing. M-learning

is sometimes considered an extension of e-learning, with the limitations of the device that can be used. According to Low and O'Connell (2006), quoted by Bahera (2013), m-learning is a subsystem of e-learning that illustrated in the following diagram.

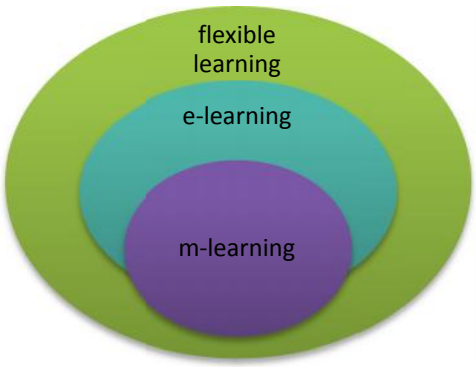

Figure 1: Relation between flexible learning, e-learning and m-learning (Low and O'Connell, 2006)

According to Geddes (2004), m-learning is the acquisition of knowledge and skills through the use of mobile technology, anywhere, anytime, resulting in a change in behavior. El-Hussein and Cronje (2010) defines m-learning is all kinds of learning that takes place in a learning environment and spaces that take into account the mobility of technology, mobility of students and learning mobility. Meanwhile, according to Bowie (2014) m-learning is e-learning that taken via Smartphone, tablet, or laptop.

Mobile devices that can be used in m-learning is all the mobile devices that connect to the internet, it can be taken anywhere, and can run learning applications. So the tablet, notepad, laptops, notebooks, and Smartphone can be categorized mobile device that can be used for m-learning. Therefore, m-learning has the advantage because the learning accessible and be done anywhere and at anytime, has the potential to be well received by the students, the achievement of learning outcomes and cost efficiency (Beutner & Pechuel, n.d.). Portability and mobility devices this technology has strong implications for the meaning of the term has been defined broadly in the existing literature. Based on this, El-Hussein and Cronje (2010) split the concept of mobility into three major areas: mobility technology, mobility of students and learning mobility, especially in an environment of higher education.

Besides advantages, Beutner & Pechuel stated m-learning also have deficiency, especially on the level of acceptance by implementing learning and education providers' ignorance about m-learning. Nash (2007) as quoted Paul (2014) adds that mobile learning is constrained to accommodate the delivery of multimedia content, including audio, images, animation, video, and text, besides the small screen size.

Organization Structure of M-Learning Managers

M-learning is an integral part of e-learning and has same characteristics of the organization. Organization of e-learning and m-learning is equal to the conventional educational organizations. According Sardjana (2015), management organization structure consists of e-learning content developer, the infrastructure

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management, service-learning, marketing, and business services. Detailed overview of the structure can be seen in the diagram below.

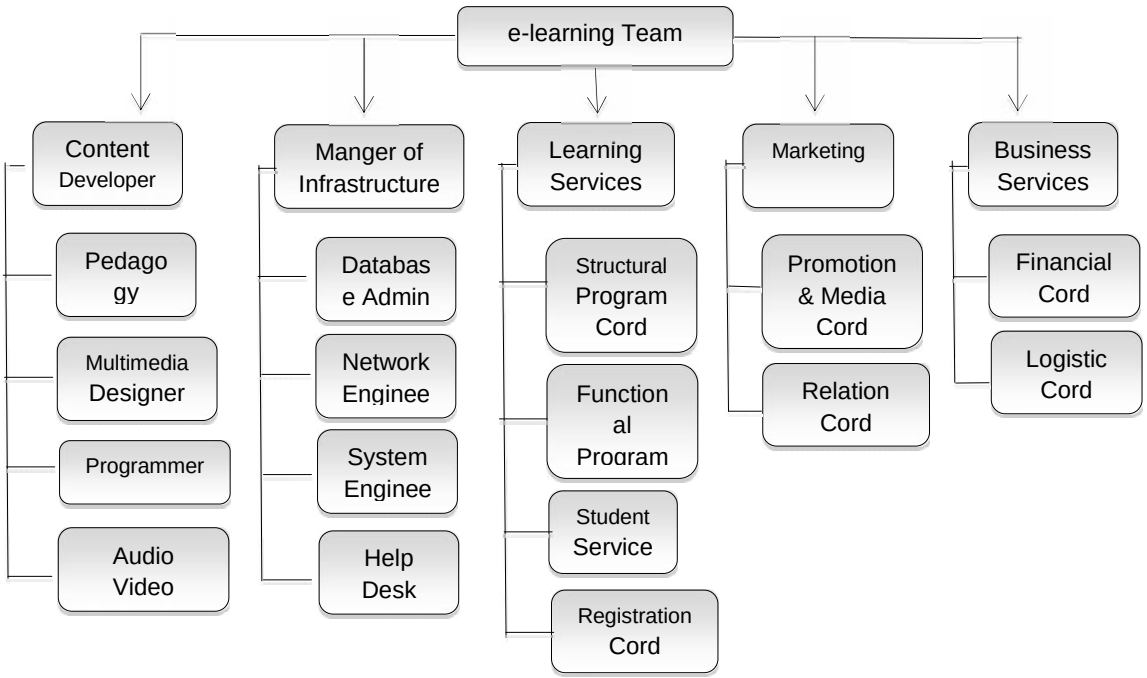

Figure 2: Proposed Organization of e-Learning

Human Resources Management

According to Dias (2012) human resource management (HRM) is the process of hiring people, train them, respect them, develop policies associated with them, and develop strategies to retain them. Similar definitions given Dessler (2012), human resource management is the process of obtaining, train, assess, and compensate employees, and pay attention to their labor relations, health and safety, as well as a matter of justice. HR management is one of the functions of the management process is staffing function.

Human Resources (HR) in an educational context is a person who works in an institution which is categorized as a lecturer or teacher and employee. Human Resources are the most valuable asset and play an important role, without qualified human resources, the education activities can not be carried out. So Arwildayanto (2012) states the artery of the human resource management institutions, because of the human factor which managed a decisive way whether or not the activity of the institution. Further Arwildiyanto (2012) concluded that as completely and as modern as any means and prizeman owned by an institution, if it is not supported by HR management is good, then the college will not develop maximum static and tends to even maintain the status quo. Performance of HR Management College is its success in developing the potential of lecturers, meaning able to empower the human resources component of higher education through optimal action against the factors forming the personal productivity of professors, lecturers and functional groups.

Based on the above definition, Dessler (2012) identifies the functions contained in HR management includes planning, organizing, monitoring,

development and utilization of human resources effectively to achieve the various goals of individuals, organizations, communities, nationally and internationally. HR planning function has a main activity that is the job analysis. Dessler (2012) describes a job analysis is a procedure to determine the tasks, positions and characteristics of workers. Analysis of generating information in the form of a job description (job description) and the job specifications or the (job specification).

Some information can be obtained through the analysis of the position if linked to the organization of m-learning are:

- *Job Activities.* Collect information about the activities of the work done. M-learning in the management of work activities include designing learning, learning content designing, building m-learning applications, prepare, control and care infrastructure (network, server, system), implementing the learning, and serving students and teachers.
- *Characteristics of workers.* Information about human behavior required by the job. In m-learning behaviors that are owned by the manager is like precision and patience, the ability to communicate, the ability to write, operate the network equipment and mobile devices.
- *Machine, tools, equipment, and work aids.* Information on the equipment used and the services provided. M-learning requires a communications network, servers, mobile devices, learning applications, and help desk services for m-learning stakeholders.
- *Performance Standards.* Information about the standards of performance for each job.
- *Context job.* Information about such things as physical working conditions, work schedules, incentives, and for example, the number of people with whom the employee normally interact.
- *Worker Requirement.* Information such as knowledge or skills (education, training, work experience) and personal identity (talent, personality, interests).

Information from the job analysis above can be used for recruitment and selection, loyalty analysis, performance appraisal, compensation, and training for development (Dessler, 2012). In conducting the recruitment and selection of information required work activities and the characteristics of workers required. The performance assessment will compare the performance of employees with work activities and performance standards. Compensation awarded by the skill and educational levels contained in the terms of trade. Training programs will be planned based on the information of the job description and skills required.

METHOD

The population sample is the job title and job requirements on e-learning managers which published through job vacancy announcements and in some literature is announced. Sampling conducted randomly. The method of data analysis by Job Analysis, using 3 of 6 stage: Job Activities, Characteristics of workers, and Worker Requirement.

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RESULT AND DISCUSSION

HRD Analysis in M-Learning

The organizational structure above (Figure 2) is the ideal structure for e-learning that can be used as a reference for m-learning organization. The diagram above gives an overview of human resources required to run the m-learning. Organizations can be adjusted to the institutions, such as the availability of human resources and infrastructure. Organizations can be made more efficient by combining several tasks into a single organizational unit, such as multimedia designer and audio-video editor into a multimedia designer and editor, network engineers and system engineers into a network and system engineer. On learning services, program coordinator of the structural and functional programs can be handled by a section outside managers m-learning. Marketing and business services can be combined into one piece. So that an alternative structure for more efficient organization to anticipate the human resources available are as follows.

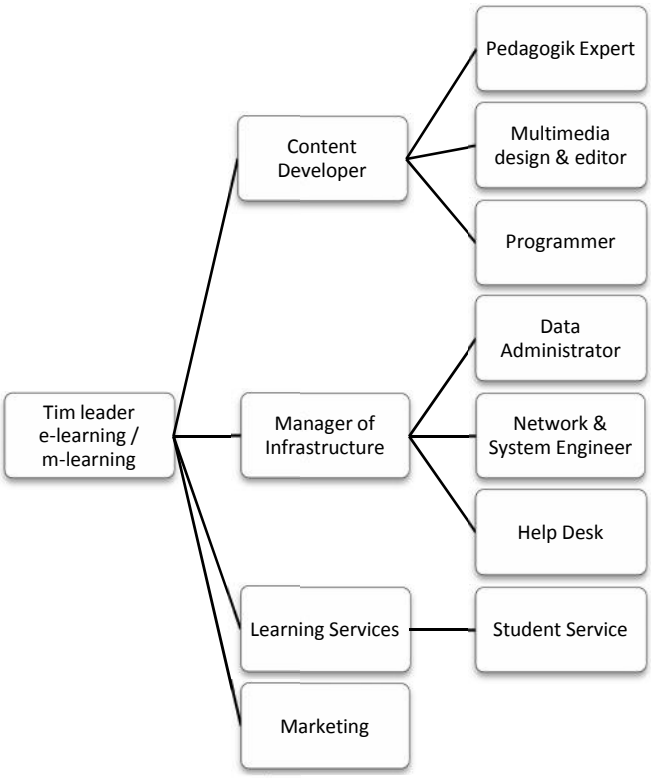

Figure 3: Alternative Organízation Structure of m-learning

From a literature review about m-learning organization and human resource management that has been parsed above, it can be written on the analysis needs of HR managers m-leaning as follows:

Table 1: HR Needs Analysis for m-learning manager

Manager	Job Activities	Worker Characteristic	Worker Requirement
Team Leader of m-learning	• Manage the operations of m-learning • Planning for the	• Have the ability to manage and lead • Have a vision for the future	• Educated minimal S2 or masters in computer, communications networks, Chief

Manager	Job Activities	Worker Characteristic	Worker Requirement
	development of m-learning • Evaluate and report the activities of m-learning	• Have the ability to communicate effectively • Mastering the overall process in the management of m-learning • Have the ability to work in teams	Information Officer, Internet Technology or educational technology • Have experience in education • Have leader personality, hard worker and discipline
Content Developer			
• Pedagogic Expert	• Designing Instructional Design • Develop learning materials • Accompanying lecturer in making instructional design	• Have the ability to design instructional • Have the ability to work in teams	• Educated minimal S2 or masters in Education
• Multimedia designer& editor	• Designing a user interface application • Designing multimedia content appropriate instructional needs • Creating animation and audiovisual • Documenting multimedia content • Assisting lecturers in designing content	• Have the ability to design graphics • Have the ability of photography and videography • The ability to create animations • Have the ability to create audiovisual content • Have the ability to work in teams	• Educated minimal S1 or diploma in information technology, multimedia, or design visual communication. • Have the skills or expertise backed training certificates in photography, videography, animators, and graphic or design
• programmer	• Developing m-learning application for various platform and Operating System • Managing and improving learning management system (LMS) for m-learning	• Have Object oriented programming skill • Have mobile programming skill. • Have the ability to work in teams.	• Educated minimal S1 or diploma in informatics or computer sciences • Have the skills or expertise backed training certificates in mobile programming and web programming.

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Manager	Job Activities	Worker Characteristic	Worker Requirement
infrastructure administrator			
• Data administrator	• Manage data in m-learning applications	• Have the ability to database management • Have the ability to work in teams	• Minimum S1 in the field of database administrators
• Network & system engineer	• Stabilizing the communication network support for m-learning • Stabilize the system and server support for m-learning • Perform maintenance (updates, upgrades, backup, restore)	• Have the technical capability in the computer network and network administration • Have the technical capability in the communication network • Have the ability to manage server • Have the ability to network troubleshooting and server • Have the ability to work in teams	• Minimal S1 in the computer field • Have competence certified expertise in the field of computer networks (ex CCNA, Microfiche), and the server administrator.
• Help desk	• Serving personal contact for stakeholders m-learning • Answer and respond to problems faced by stakeholders (professors and students) • Make FAQ • Providing assistance	• Having good communication skills, oral and written • Have patience • Having the ability to use learning management system (LMS) • Have the ability to work in teams	• Minimal S1 in communications or computer
Service learning	• Manage learning management system (LMS) • manage content • Manage course homepage	• Have the ability to use a learning management system (LMS) • Have the ability to use ICT technology • Have good communication skills, oral and written • Having competancy for team work	• Minimum education is S2 in the appropriate fields with the running program.
Marketing	• Educating and socializing m-learning to the user	• Having the ability marketing • Having good communication skills, oral and written • Have the ability to work in teams	• Minimum education is S1 marketing management

In the above table, learning services should be given to teachers or lecturers who became executor of the learning process and has a role to bring m-learning into the classroom. However, based on the results of research conducted by Callum, Jeffrey and Kinshuk (2014) found that there are factors that affect the successful implementation of m-learning by teachers or lecturers namely digital literacy, anxiety in the use of ICT, and the ability to apply m-learning in the classroom. So upgrading human resources involved in this organization is needed and should be identified.

CONCLUSION

It can be concluded that the m-learning is the development of e-learning that support learning in the future that require high flexibility, where everyone can learn anywhere, anytime and using any mobile device that has.

To produce learning-based m-learning is good and sustainable; the m-learning should be managed by proper organization and ideal. M-learning management organization Harul minimal consisting of team leaders, content developers, infrastructure management, service-learning and marketing. Analysis of m-learning organization of work prepared by standard procedures which include job analysis 3 of 6 information, the work activity, job characteristics and requirements of workers. So that the resulting analysis of the needs of HR managers of m-learning.

The results of the analysis of the needs of HR managers of m-learning still needs to be developed by utilizing six information from the job analysis, and use some of the standard description of the work on each part of the organization.

REFERENCES

Arwildayanto. (2012). *Manajemen Sumber Daya Manusia Perguruan Tinggi Pendekatan Budaya Kerja Dosen Profesional*. Ideas Publishing.

Behera, Santosh Kumar. (2013). E And M-Learning: A Comparative Study. *International Journal On New Trends In Education And Their Implications July 2013: Vol. 4, Issue: 3, Article: 08, ISSN 1309-6249.*

Dias Laura Portolese. (2012). *Beginning Management of Human Resources v.1.0*. Retrieved from http://2012books.lardbucket.org.

Dessler Gary. (2012). *Human Resource Management 13th Edition*. Pearson Education

El-Hussein, M. O. M., & Cronje, J. C. (2010). Defining Mobile Learning in the Higher Education Landscape. *Educational Technology & Society: Vol. 13, No. 3* (pp. 12–21).

Mac Callum, K., Jeffrey, L., & Kinshuk. (2014). Factors impacting teachers' adoption of mobile learning. *Journal of Information Technology Education: Research 13.* Retrieved from http://www.jite.org/documents/Vol13/JITEv13ResearchP141-162MacCallum0455.pdf

Paul Tyechia V. (2014). An Evaluation of the Effectiveness of E-Learning, Mobile Learning, and Instructor-Led Training in Organizational Training and Development. *The Journal of Human Resource and Adult Learning: Vol. 10, No. 2, December, 2014.*

Sardjana Djadja. (2015). *Organisasi dan Tata Kelola e-Learning di Perusahaan.*

ISBN 978-602-73030-1-0

Data Quest. Retrieved from http://www.slideshare.net/djadja/organisasi-dan-tata-kelola-elearning-di-perusahaan.

STUDY ON MAPPING OF QUALIFICATION, OCCUPATION AND COMPETENCEIN ONLINE EDUCATION

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Abstracts

The study on mapping of qualification, occupation and competence in online education is intended to develop mapping competency standards of the online education as a valid guide or reference for developing learning design, learning development and learning implementation and management. In the absence of a map of qualifications, occupational and competence standard of on line education, then there is a gap between the speeds of online technology development with its application in online education. The impact of this gap is the difficult to find experts and operators to run online education. Furthermore education and training institutions also have difficulties in learning design, learning development and learning implementation and management. The model used in this mapping is the integration model of RMCS (Regional Model Competency Standard) (2006), and The Jigsaw model for online education systems (Morten Flate Paulsen, 2002). The instruments to map the qualifications are the Indonesian Qualifications Framework approach. The method used in this study is by collection and identification of data of the need of qualification and competencies requirements in the published by 29 online education institution. Observations made by identifying occupational description and its responsibilities. The study results in: three levels based on Indonesia qualification framework (level VI-VIII), 16 Occupations/job titles, and 160 units of competency. Limitation of this study was lack of data from online education institution in Indonesia, therefore to validate the map of qualification and its competencies; further research need to be done is the response and verification by line education provider.

Keywords: Qualifications, occupation, unit of competency, online education

INTRODUCTION

The rapid development of digital technology recent decades, has affected the development and changes in the world of education and instructional, namely the so-called online education, but various terms arise, such as distance learning, virtual education, Internet-based education, web-based education, and education via computer-mediated communication. Furthermore Ochoa-Alcántar J.M., Borders C.M, and Bichelmeyer B.A,. in Pershing, 2006, states that this phenomenon as a revolution in education, and raises difficult questions about the value of a distance learning than face-to-face classroom learning in the case of affectivity, efficiency, humanism, and access. Whatever the answer is urgent that distance learning into the main stream, which provides not only bring together learners from different locations within the learning objectives.

The next question is how different between distance education with traditional learning. It is clear that distance education separates between teachers and students, the use of computer networks for the deployment of learning content, allowing two-way communication over a computer network so that students can have communication with other students, teachers and educational staff. Romiszowski and

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Mason (2004) identify the characteristics of distance education is different from the traditional ones:

(1) The instructor can teach from anywhere;
(2) Allows borderless improvement of physical infrastructure;
(3) Provide asynchronous activities so as to provide a flexible time management;
(4) Allows students to learn from anywhere;
(5) Allows a flexible schedule;
(6) It offers possibilities for students to analyze their interaction through the use of text threads; and
(7) It offers possibilities for students to see a display of group dynamics them.

The next question is how the characteristics of this online technology that can facilitate learning to improve learning performance. Many things are promising from online education identified by many authors, especially when the learning material was developed in the form of multimedia learning, namely:

- Make students understand the lesson;
- Make students remember easily about the content of lessons;
- Convey the lesson content with a sophisticated and memorable;
- Able to show the world about the rich with science;
- Rich with a variety of learning activities;
- Able to entertain during the learning process;
- Create the interactive between students with the latest technology;
- Provide opportunities for teachers to change teaching rules;
- Make the teaching and learning process more fun;
- Facilitate learning cantered on students because students are given the freedom to choose their own learning materials and learning at an appropriate level with yourself;
- Teach every student with different learning styles;
- Promote cooperative and interactive learning among students through discussion;
- Facilitate learning based on constructivism;
- Facilitate students have the freedom to learn on their own without being influenced by the other party;
- Can choose their own learning materials and learning with content that matches the interests and will of its own.

The next question is whether to organize online education requires a specific management? Anderson & Elloumi (2004), explain that the development of online education is a complex endeavour, and it makes no sense to believe that if a high calibre online education can be made with only one or two people. Quality online education requires a highly organized management, and the efforts of a joint concert of many players.

From the demands of these tasks and bulk services and digital technology demands that must be accurate and precise within their standards, then the question arises is what kind of the qualification and occupation/job title are needed to run an online educational institution? And its competence can be maintained and continue to increase the speed of development as digital technology development speed? This study identifies and analyses the needs of human resources concerning qualifications

and occupations as well as the competence to run and administer educational institutions online in a professional manner, so that it can be used as a reference for the education organization that plans to develop on-line educational, and educational institutions to develop the profession that will handle educational institutions.

In the absence of a map of qualifications, occupational and competence standard of on line education, then there is a gap between the speeds of online technology development with its application in online education. The impact of this gap is the difficult to find experts and operators to run online education. Furthermore education and training institutions also have difficulties in learning design, learning development and learning implementation and management. For this reason, writer initiated to study mapping of qualifications, occupational and competence standard of on line education.

METHOD

The purpose of this study is to map the qualification, occupation and competence in the development of human resources for online education, is intended to develop mapping competency standards of the emerging online education as a valid guide or reference for developing learning design, learning development and learning implementation and management. This also can be an input for professional training institutions, professional certification body, online education and human resource development managers planning of human resources development.

The approach used in the study of this mapping is the model of RMCS (Regional Model Competency Standards, ILO 2006). This model was adopted by the Regional Skills and Employability Programme in Asia and the Pacific (SKILLS-AP) for the development of competency standards, occupational and qualifications effectively and efficiently. RMCS is a standard development model with the approach of appropriate occupational or industry sector groupings. RMCS concepts relating to industrial/organization as a whole and not only one occupation. The fundamental concept of competence in RMCS is to focus on what is expected of personnel in the workplace rather than learning or time spent on training or education. The structure consists of RMCS: (1) on description and scope of the industry/organization, (2) primary functions, (3) units of competency, which is described as below.

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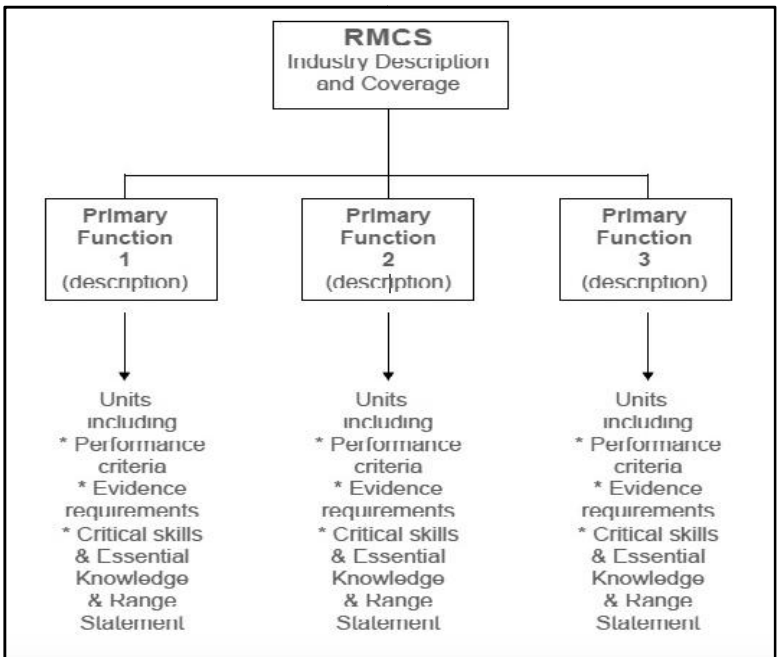

Figure 1: Model RMCS (2006)

Implementation of the RMCS models in Indonesia through the Minister of Labour No. 2 in 2016 was adapted into several functions that consist of business objective functions, key functions, major functions and basic functions, which can be pictured as follows:

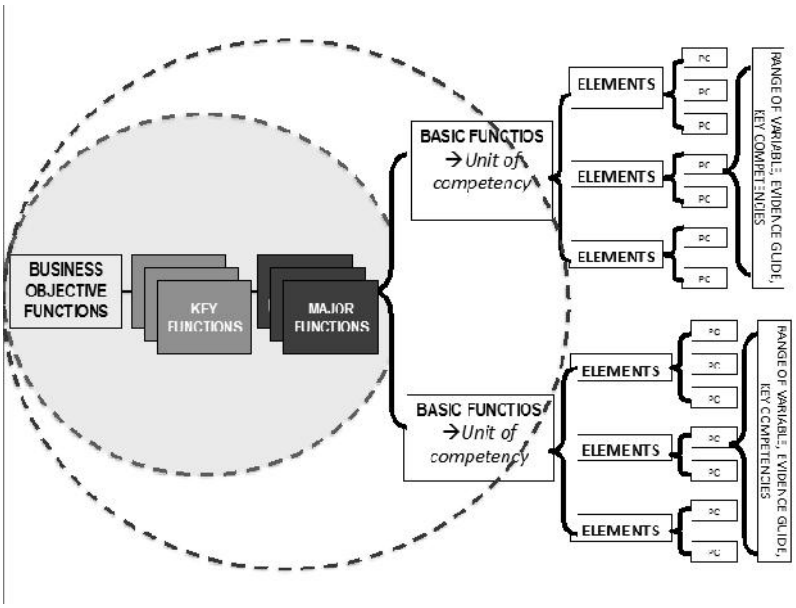

Figure 2: RMCS adapted by Indonesia

With this model RMCS approach the mapping step of standardization can be done by:

- Identification and description of the scope of the online education business.
- Identification of the primary functions of the system organizing online education.
- Identifying a position in each of the primary functions.
- Identification of units of competency based on the descriptions, duties and responsibilities.

RMCS model describe every aspect of the job. With an overview of the work and the results achieved can be identified skills, knowledge and capacity to prioritize and manage the roles and functions of personnel. RMCS also can be a valuable tool for determining not only the duty of every person who is required to perform in the organization, but also the scope of their work, and how they combine functionality and performance levels.

Data and information of competence required in the development and management of online education organizations are identified from literature, related competency standards, and information needs of the industry will be the types of occupations needed in the recruitment of personnel. Data and information is analysed and formulated in the RMCS format then further validated by involving experts and practitioners in the development and management of online education.

Data collection instruments used by utilizing the website to access information on the competence needs of online education. While the validation process created a questionnaire to be submitted to the experts and practitioners developer and manager of online education.

Procedure of analysis of the data that had been collected were analysed descriptively based on primary function, and occupational descriptions are compared to the description on the Indonesia Qualifications Framework to obtain the level of qualifications in the field/sector of online education. This step is the first step in the process of formulating the qualifications nationally/internationally, followed by the consensus among other subjective study to be interring subjective consensus.

RESULTS

Results from the identification of primary function in the management and organization of online education

Identification of the primary function was done by observing online education system that support online education, which are *The Jigsaw models for online education systems*, which consist of four categories, namely: Content Creation Tools (CCT), Learning Management System (LMS), Student Management System (SMS), Accounting System (AS). (Morten Flate Paulsen, 2002). This model is described as jigsaw below.

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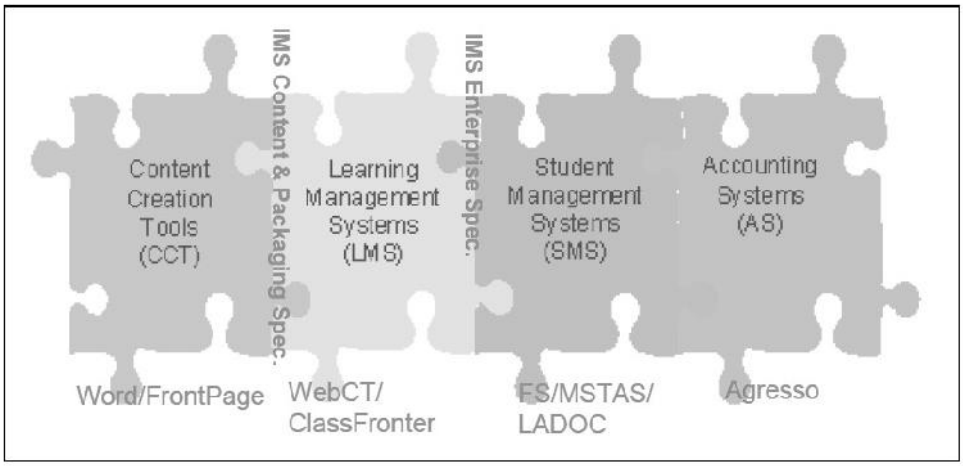

Figure 3: The Jigsaw model for online education systems.

In line with the model jigsaw above, based on the primary functions, Anderson and Elloumi (2004) describe and categorize the scope of functions of development and delivery of online education into three primary functions: (1) infrastructure and support for the development identify the content; (2) Design and development of online education; and (3) Submission, Quality Control, and support Online Education Students.

Results from the identification of potential occupation in organization operating and managing online education

Potential occupational in developing and organizing online education was identified from literature, related competency standards, and information needs of the online educational organization to the types of occupations needed in the recruitment of personnel. Occupation/job title needs information was obtained from the formation published online by 29 online educational institutions. The results of the identification of potential occupational required by educational institutions online could be seen in the table below.

Table 1: Potential occupation/*job title* in three primary functions in online education.

***Content Creation Tools* (CCT)**	***Learning Management System* (LMS)**	***Student Management System (SMS)***
• Subject Matter Expert • Online Instructional Designer • Instructional Support Specialist-Distance Education	• Director of Online Education • Distance Learning Project Manager • Coordinator of Online Education Distance Programs • Dean of Online Education and Learning Resources • Web Developer • Designer (Specialist) • Programmer and	• Online Learning Coordinator • E-Learning Quality Assurance • Quality Assurance online Education Coordinator • ELearning Coordinator • Online Admissions Associate • Online Student Transfer Advisor

	Multimedia Author • Graphic (Visual) Designer	

Results from the identification of description and responsibilities of occupation

Based on the results of the identification of potential occupational descriptions and responsibilities with approach of the RMCS model, it can be formulated into unit competencies required by educational institutions online that can be seen in the table below.

Table 2: Map of occupation and unit of competencies of human resource needed by online education.

NO	OCCUPATIONS/JOB TITLES	DESCRIPTION	UNITS OF COMPENTENCY
1.	Subject Matter Expert for online education.	SMEs are responsible for ensuring that the content of the online course is an appropriate alternative to the lecture content normally given in a traditional course. In addition, the SME must write the exercises, activities, and examinations needed to reinforce the new learning. It is also essential that SMEs commit to working as an integral part of the team throughout the development process, ensuring that the online course content is easy to access and interesting for the students	**Core competency:** 1. Ensuring the content of the online course is an appropriate alternative to the lecture content normally given in a traditional course. 2. Identifying or creating textbooks, readings, and resources; 3. Write the exercises, activities, and examinations needed to reinforce the new learning. 4. Ensuring a pedagogical "match" among the course objectives, content, exercises, examinations, and assignments; **Elective competency:** 5. Identifying materials that require copyright clearance, 6. Providing the instructional designer with the necessary information; 7. Providing other team members with a legible copy of any written material.
2.	Online Instructional Designer	Serves as a member of the Academy Instructional Design Team to assist and support faculty in designing, revising, implementing, and assessing teaching strategies that engage students and promote increased retention and student success. The Instructional	**Core competency:** 8. Designing and implementing instructional strategies, 9. Guiding faculty in the planning, design, and production of media-based instructional units. 10. Evaluate requests from faculty and coordinates with the team to efficiently fulfill requests. 11. Develop instructional design projects concept. 12. Identifying and obtaining instructional resources and

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		Designer supports faculty who teach in all formats-face-to-face, blended, and on-line.	technologies and provides recommendations to relevant people. 13. Develops instructional methods, teaching strategies, and the effective use of currently available tools and technologies to enhance instruction. 14. Provides guidance on training, assessment, and evaluation of distance education courses. **Elective competency:** 15. Maintains knowledge of current trends in instructional methods and theory, assessment techniques, and teaching tools and technologies. 16. Maintains knowledge of current trends in instructional technology and effective integration of instructional technology into classroom instruction. 17. Determine, create, and adapt instructional resources; 18. Sequences activities and learning outcomes; 19. Evaluates instruction; 20. Arranges technical production and services;
3.	Online Learning Facilitator/instructor	• Online facilitator's help learners create a cohesive learning community in which they share ideas, apply their knowledge, give feedback, and make reflections on their work. • Online facilitators help build communication among course learners, provide feedback to the learners, and evaluate and track learner performance during the course of a course.	**Core competency:** 21. Design effective online classroom sessions using web conferencing interactivity tools. 22. Re-purpose traditional classroom exercises for collaborative online learning. 23. Engage learner attention and participation in your online classroom events. 24. Conduct best practices for facilitating live online learning events. 25. Develop comprehensive lesson plans, facilitator guides, presentations and participant materials. 26. Design pedagogy for e-learning **Elective competency:** 27. Evaluate, implement and use ICT-based educational platforms. 28. Analyze, implement and evaluate

			e-assessment
4.	Instructional Support Specialist-Distance Education	Responsible for supporting of faculty delivery of specialized distance education courses. Serve as a liaison to ensure the efficient overall administration and delivery of the unique courses and related services to both faculty and students. This is a security-sensitive position related to student records and confidentiality.	**Core competency:** 29. Manage student databases for testing and promotional and/or course related mailings. 30. Prepare, edit and distribute student tests. 31. Schedule instructors for test proctoring. 32. Publish online exams and schedule proctored or practice/self-assessment. 33. Grade and record lab skills, quizzes, and exams. **Elective competency:** 34. Process and distribute instructional newsletters and grade notifications. 35. Process videotape distribution and returns. 36. Duplicate instructional materials. 37. Manage student queries. 38. Operate various instructional office equipment. 39. Handle sensitive information in a professional and confidential manner. 40. Maintain and protect applicant files, student testing and grading files. 41. Maintain program inventory and ordering of supplies.
5.	Director of Online Education	The Director of Education-Online is responsible for the overall operations of the Academic Department of Online Operations, which may include one or more Delta schools and/or brands, assuring compliance with institutional, accreditation, state, and federal policy and regulation as well as Delta standards, policies and procedures. The Director of Education	**Core competency:** 42. Provides Oversight and Leadership to Program Directors 43. Creates and Maintains a Master Schedules of Classes 44. Embraces and Facilitates Implementation of Hybrid/Blended Instructional Delivery 45. Manages Academic Data 46. Provides oversight of testing of new students for advanced standing, appropriate award of proficiency credit, and notification of students. 47. Oversees Faculty Performance and Development 48. Leads and Develops Others.

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		serves as a member of the Online Operations Management Team and supervises the Academic team, including the Assistant Director of Education (when applicable), Program Directors, Faculty managers, faculty members, and other academic support staff.	**Elective competency:** 49. Assess marketing and planning; program and curriculum development; and instructional staffing. 50. Planning, developing, implementing and managing distance learning programs both online and at extension sites; 51. Planning and managing the distance education budget; 52. Establishing, instrumenting and monitoring performance goals for distance education programs; 53. Formulating guidelines and strategies. 54. Assisting faculty and staff with strategic, support resources that assure instructional effectiveness of courses and programs delivered via face-to-face, interactive video, and online modalities. 55. Providing leadership and direction for the planning and implementation of degree programs for students at extension sites, in a manner that meets regional needs and fosters workforce development. 56. Supervising and approving the issuance of contracts to faculty for developing and teaching distance education courses; 57. Working with various constituents to create new markets. 58. Coordinating the administration of student evaluation of instruction for off-campus and online courses; 59. Managing the distance education inventory of courses and degree programs for planning purposes; 60. Overseeing the management of interactive video classrooms and equipment at distance education sites; 61. Assuring the scheduling of the right mix of classes for distance education learners; 62. Research emerging e-learning

			technologies and applications to recommend new strategies, methodologies and usage of tools for supporting faculty and student e-learning needs. 63. Design and implement strategies to assess (quantitatively and qualitatively) learning outcomes for distance learning courses and programs. 64. Establish and manage institutional effectiveness processes to systematically collect and analyze distance learning program data, and use this data for continuous program improvement and to ensure compliance with accreditation standards. 65. Develop and implement policies and procedures to support the strategic deployment of distance learning to support DSU's goals. 66. Administer budgets, identify revenue resources, and manage a fiscal model that includes revenue sharing with departments that offer and support online courses and programs. 67. Direct campus instructional technologist(s), instructional designer(s), and other distance and digital learning support personnel 68. Providing faculty professional development around competencies necessary to design, develop, and deliver/teach distance learning courses 69. Develop and oversee the implementation of innovative Distance Learning student and faculty support services (e.g., online advising, library resources, etc.).
6.	Distance Learning Project Manager	The distance learning project manager (DLPM) works on a collaborative team consisting of QC's Dean of Online Programs, the	**Core competency:** 70. Oversee and contribute to the design of eLearning courses. 71. Test and deploy new eLearning courses to the Learning Management System (LMS) in collaboration with the course

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		Academic Dean in the course program area, and a subject matter expert (SME). The DLPM oversees the process and contributes to the creation of original, high-quality presentation of online course content provided by the SME.	development team. 72. Deliver excellent work product on time. **Elective competency:** 73. Conducts faculty orientations and leads or collaborates on special projects that require learning design expertise. 74. Provides direction and expertise in the development and revision of online and hybrid courses and in the planning and implementation of special projects. 75. Facilitates the process of developing and revising courses. 76. Recommends active learning strategies for adult learners, which address diverse learning styles, abilities, and backgrounds. 77. Evaluates and ensures the quality, accuracy, and effectiveness of each course within the context of Quality Matters. 78. Recommends policies and procedures to improve the course development and revision process, and promote collaboration, partnerships, and relationships among divisions. 79. Identifies and helps resolve ethical and accessibility implications of instructional design.
7.	Dean of Online Education and Learning Resources	• To serve as administrator and supervisor of an instructional support area of a community college by planning and directing the development and organization of the area's goals and objectives and by providing leadership and vision for online education, professional development,	**Core competency:** 80. Coordinate and supervise all activities within the instructional sector including off-campus offerings; 81. Manage all part-time instructors; 82. Evaluate all professional, classified and faculty staff members within the instructional sector; 83. Coordinate and supervise the financial matters of the instructional sector for Instruction concerning the instructional budget. **Elective competency:** 84. Provide in-service orientation and

		library services, foundational skills, the Faculty and Staff Centre for Student Success, the Student Success Committee, AVID for Higher Education, the Honours program, and the Learning Assistance program. • To foster a culture of collaboration, mutual respect, innovation, and continuous improvement throughout the District; lead by example; actively participate in and support District-wide participatory governance components and activities and other collaborative processes; encourage professional excellence among the staff and promote an organizational culture of customer service, innovation, and quality services.	training for professional staff members and assist the professional, classified, and faculty staff members within the instructional sector with the improvement of instruction, through the Professional Development Plan (PDP); 85. Participate in the recruitment and employment of professional, classified and faculty staff members, full-time and part-time, within the instructional sector. 86. Recommend full-time and part-time teaching assignments; 87. Participate in the pre-enrolment activities of the college; 88. Assist with the preparation of the college catalogue and other publications related; 89. Supervise and keep all records for the instructional sector including a current equipment inventory; 90. Furnish the college bookstore manager with lists of text-books and other instructional materials to be used; 91. Supervise and assist in the making recommendations concerning secretarial/clerical personnel.
8.	Web Developer	Web developers should show faculty examples of online materials that illustrate the various kinds of content and Interactive options that is available to them. They should then describe to faculty how their courses can be	**Core competency:** 92. Creating interactivity, and determining the “look and feel” of the interface; 93. Creating design storyboards. 94. Working with the graphic designer to conceptualize the screens, backgrounds, buttons, window frames, and text elements in the program; **Elective competency:**

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		produced using a consistent organizational template that provides students with knowledge of the learning objectives, an outline of the content, Assignments, evaluation information, resources, links, a list of requirements, and FAQs.	95. Helping the SME or instructor to use the tools to create the course Web pages, and to maintain the course when complete; 96. Helping the instructor or tutor to use the tools needed to make the course interactive, such as e-mail and chat utilities;
9.	Multimedia Specialist Distance Education	The Multimedia Specialist reports to the Director, Distance Education and assists with administration of systems and production of video for multimedia.	**Core competency:** 97. Conceive, create and deploy multi-media content. 98. Maintain confidentiality of records and information. 99. Detect and correct grammatical and spelling errors in written correspondence. 100. Maintain files accurately, in paper and in software programs. 101. Analyze and evaluate new technologies for potential applications in instruction. 102. Demonstrate instructional applications of technologies. **Elective competency:** 103. Record faculty lectures in audio and video formats. 104. Record campus events in audio and video formats for online students as requested. 105. Edit video and audio recordings. 106. Process and distribute multi-media to appropriate individuals and channels. 107. Log workflow of audio-visual needs. 108. Back up administration of multi-media servers. 109. Provide faculty, staff and student training for Distance Education multi-media tools. 110. Maintenance schedules and maintains equipment.
10.	Programmer and Multimedia	Multimedia programmers are responsible for	**Core competency:** 111. Creating multimedia product designs

	Author	designing and creating multimedia computer products that combine text with sounds, pictures, graphics, video-clips, virtual reality, digital animation and other forms of media.	112. Producing, demonstrating and receiving feedback about products. 113. Keeping up to date with technological and software developments 114. Producing products that are user-friendly, effective and appealing **Elective competency:** 115. Meeting and liaising with clients and managers to discuss requirements or project progress 116. Developing skills and expertise in appropriate software and programming languages 117. Working as part of a multi-disciplinary team
11.	Graphic (Visual) Designer	As content is being developed, the graphic designer works with the Web developer and the author to create a unique course look, while at the same time integrating the course's functionality into the common institutional template. The use of these common elements Provides familiarity for online students and makes it possible for them to take several courses, but to learn how to learn online only once.	**Core competency:** 118. Designing consistent graphical elements when courses are being updated or revised. 119. Combine words, images and symbols to create visual representations of concepts, products and messages 120. Design drawings, sketches or visual images of designs for clients to review 121. Direct creation of design production in selected media, working with necessary staff such as technicians, developers, printers and programmers 122. Evaluate client requests and offer design ideas that meet all aspects of client's desires; modify designs according to client's wishes. **Elective competency:** 123. Plan budget and working schedules for design creation and production 124. Recommend best materials and media for publication and display according to projected outcome of design or website 125. Use a variety of software programmes and functions including page layout, typography and visual arts to produce technical and

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			aesthetically pleasing designs.
12.	Quality Assurance Specialist, eLearning	Works in collaboration with Department of eLearning leadership using pedagogical and instructional design expertise to support development and maintenance of online and hybrid courses to achieve the College's mission to provide quality engaging academic experiences.	**Core competency:** 126. Monitor online and hybrid courses for alignment to published quality standards and best practices as it relates to design and instruction. 127. Ensure compliance with federal and state distance learning regulations including, but not limited to, copyright and accessibility. 128. Provide support in the development of quality online and hybrid courses. 129. Maintain currency in knowledge of trends, innovations, research and best practices related to quality assurance in online and hybrid learning. 130. Assessment and refinement of hybrid and online course quality assurance processes. **Elective competencies:** 131. Development and facilitation of professional development opportunities related to quality assurance initiatives. 132. Participate in the development and administration of applicable policies, strategic plans, goals and programmatic activities pertaining eLearning at the College.
13.	Quality Assurance online Education Coordinator	The e-Learning Quality Assurance Coordinator is to ensure courses contain content and functionality that are the highest of quality. Deploy online/hybrid courses to enable learning, we want to present the highest quality materials and functionality within that context to reflect our core values.	**Core competency:** 133. Edit course content (online and hybrid), reviewing for readability, spelling and grammar, copyright and adherence to Style Guidelines and appropriateness for learning level. 134. Review online and hybrid courses for technical functionality (resolve as needed), student accessibility, ADA compliance and alignment of objectives/outcomes to assessments and standards. 135. Keep current on knowledge of digital literacy: user experience,

			graphical user interfaces, learning management systems functionality and web browser expected behaviours. 136. Manage inbound/internal and outbound/external communication at frequency and quality levels established by the team. **Elective competency:** 137. Conduct research in content and procedural areas. 138. Perform data entry, record keeping/progress tracking and reporting.
14.	The Online Learning Coordinators	• The Online Learning Coordinator is responsible for platform and resource management, professional development and training, and faculty/student support. • The Online Learning Coordinator is responsible for supporting faculty and students by resolving issues in the online classroom, serving as a resource and point of contact, and conducting student and faculty development workshops. The online learning coordinator also participates in the quality assurance process by coordinating peer reviews across the colleges.	**Core competency:** 139. Leads faculty in developing student-cantered courses and programs leveraging technology, active learning models, and practices designed to improve instructional effectiveness and student development for online education programs. 140. Collaborates in the design, development and delivery of professional development workshops for existing faculty to maximize service quality, effectiveness, and efficiency. Identifies and assesses training and development needs for experienced faculty members. 141. Coordinates and works closely with faculty leaders, to develop and assess faculty needs for development in areas of classroom assessment instruments, technology, models designed to improve instructional practice, and personal development. 142. Assists with the coordination of the faculty peer review program for online course design, as well as provide training, coaching and mentoring of peer reviewers in conjunction with institutional guidelines. 143. Develops evaluation models to determine educational

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			effectiveness and comparability of online education to campus-based programs and courses. **Elective competency** 144. Construction and maintenance of digital resources. 145. Establishing, and implementing criteria and quality standards, according to QM distance learning principles and best practices for electronically delivered courses, course design, development, and evaluations of distance learning courses, as well as, implement current educational technologies, including multimedia, into course design.
15.	Online Student Transfer Advisor	The online student transfer advisor is responsible for assisting online undergraduate and graduate transfer students with their enrolment in the university's online degree programs by obtaining official transcripts from prior institutions and evaluating and awarding academic transfer credits.	**Core competency:** 146. Requests, expedites, receives and processes official transcripts from other institutions in support of student applications to the university's online degree programs 147. Evaluates, awards, posts, and maintains transfer and pending academic credits to online student records in the university system 148. Collaborates with online academic advisors in advising transfer students of the transfer credits awarded, and in discussing the student's academic program choices based on transferability of academic credit 149. Establishes and maintains collaborative and cooperative relationships with various internal constituencies to resolve student issues related to initial enrolment in online programs. **Elective competency:** 150. Maintains records of communication with applicants and enrollees per department guidelines.
16.	Online Admissions	The Online Admissions	**Core competency:** 151. Organizes recruitment activities

	Associate	Associate is responsible for facilitating the recruitment and enrolment of students into the university's online programs, coordinating cross-functional efforts to support prospective online students through the application and admission processes.	to encourage prospective students to apply to and enroll in the university's online programs 152. Directs recruitment activities to encourage prospective students to apply to and enroll in the university's online programs 153. Administers recruitment activities to encourage prospective students to apply to and enroll in the university's online programs **Elective competency:** 154. Initiates contact with potential online students and responds to potential student inquiries to encourage enrolment at the university; 155. Assists potential online students with the completion and submission of their application and all supporting materials for admission and enrolment 156. Serves as a primary point of contact for prospective students and applicants, coordinating information and services with other members of the enrolment team on the student's or applicant's behalf 157. Connects accepted students with the assigned financial planner and academic advisor to facilitate financial obligations and enrolment in online programs 158. Collaborates with financial planners to assist accepted students with the completion of forms and documentation necessary to process and approve financial aid or other methods of tuition payment 159. Resolve student issues, questions and concerns related to admissions and initial enrolment in online programs 160. Maintains records of communication with applicants and enrollees per department guidelines

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Results from the identification and mapping of qualifications, occupations and competencies in online education

Mapping qualification in this study is based on the Indonesia Qualification Framework (IQF) established through Presidential Regulation number 8/2012. There are nine levels in this qualification framework, where each level qualification described as well as specific qualification level. Based on the description in IQF, this study identify each job title/occupation, description, responsibilities and its competence to be paired with each level IQF may be identified as a possibility to fill positions in the level of Qualification in IQF. The results of the pairing of the required occupational online educational institutions in the development of human resources are three levels of qualifications i.e.: level VI, VII and VIII, which can be seen in the table below

Table 3: Map of qualifications of online education professional and its occupation may in include in each level of qualification.

LEVEL OF QUALIFICATION (IQF)	DESCRIPTION	OCCUPATIONS/JOB TITLES MAY INCLUDE AT THIS LEVEL, BUT NOT RESTRICTED TO:
VIII	• Ability to develop the science and technology field of online education or professional practice through research, to produce innovative work and tested. • Ability to solve problems of science and technology in the areas online education through inter or multidisciplinary approach. • Ability to manage research and development that benefit society and science, and is able to receive national and international recognition.	• Director of Online Education • Dean of Online Education and Learning Resources • The Online Learning Coordinators
VII	• Ability to plan and manage resources under its responsibility, and comprehensively evaluate its work by taking advantage of science and technology, to produce measures of strategic development of the organization. • Ability to solve problems of science and technology, in online education through monodisipline approach. • Ability to conduct research and make strategic decisions with full accountability and responsibility for all aspects of which are under the responsibility of their expertise.	• Subject Matter Expert for online education. • Online Learning Facilitator/instructor • Online Instructional Designer • Distance Learning Project Manager • Quality Assurance online Education Coordinator
VI	• Ability to apply online education and harness science and technology in problem solving and able to adapt to the situation at hand.	• Instructional Support Specialist-Distance Education • Web Developer

	• Mastering the art theoretical concept of online education in general and the theoretical concept of a special section in these knowledge areas in depth, as well as to formulate procedural problem solving. • Being able to take the right decisions based on analysis of information and data, and is able to provide guidance in selecting various alternative solutions independently and groups. • Responsible for own work and can be held accountable for the achievement of the organization's work.	• Multimedia Specialist Distance Education • Programmer and Multimedia Author • Graphic (Visual) Designer • Quality Assurance Specialist, eLearning • Online Student Transfer Advisor • Online Admissions Associate

DISCUSSION

The primary function in developing and organizing online education

With RMCS model approach in developing standard of qualifications, occupations and competencies in the scope of on education organization can be identified the primary functions of the organization and further can be identified units of competency which construct these primary functions. RMCS approach by classifying the functions of primary is in line with the grouping in The Jigsaw models for online education systems, which divides the functions of the primary: Content Creation Tools (CCT), Learning Management System (LMS), Student Management System (SMS), and Accounting System (AS). (Morten Flate Paulsen, 2002). For occupational mapping of online education is focused on the primary function of:1) Content Creation Tools (CCT) include infrastructure and support for the development identify the content;2) Learning Management System (LMS) include Design and development of online education; 3) Student Management System (SMS) include Submission, Quality Control, and support Online Education Students.

Potential occupations in developing and organizing online education

The results of the literature study and needs analysis of some qualification and occupations needs by some college education providers through the online recruitment advertising through the internet successfully identified a number of 16 positions occupation profession work needed along with a description and responsibilities of each occupation. By comparing the occupational descriptions and responsibilities, were found similarities equally among college operate this online education, so that from the description and its responsibilities, and based on the model RMCS (2006) can be identified number 160 units of competency which can be developed into a competence standard. With a model based RMCS (2006), each unit can be developed competency elements, performance criteria, range of variable and evidence guides.

Mapping of qualifications, occupations, and competencies in online education

Qualifications, occupations and competence online in educational successfully mapped by reference to the Indonesian Qualifications Framework (IQF) and traceable to international qualification frameworks, such as AQRF (ASEAN Qualification Reference Framework), and the Qualifications Framework of the ILO, 2006. Based on the description of the qualifications framework and by pairing with

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descriptions and responsibilities of occupations we can identify the qualifications framework level VI, VII, and VIII, which can be built from occupation in online education work. Level below the level VI is not identified its specificity for the online education field of interactive multimedia but it can be a pathway of online educational qualifications.

CONCLUSION

From the discussion of the results and mapping qualifications, occupational and competence in the field of online education, especially primary education activities online, it seems safe to conclude that:

- Primary Function of the development and management of online education consists of three primary functions are:
  1) Content Creation Tools (CCT) include infrastructure and support for the development identify the content;
  2) Learning Management System (LMS) include Design and development of online education;
  3) Student Management System (SMS) include Submission, Quality Control, and support Online Education Students.
- From 3 primary functions has identified 16 types of essential occupations for managing online education.
- Of the 16 types of occupation, identified 160 units of essential competencies for managing and operating the online educational institutions.

From the results of this study, it is recommended to be continued for competency standard formulation activities:

- National Verification of competency mapping of qualification, occupation and unit of competence.
- Identification of competency units at every level qualification KKNI.
- Development of competencies by developing standards of competency units with competency elements, performance criteria, the range of variable and evidence guides on each unit of competency.
- National consensus standards of competence.

REFERENCES

Anderson Terry & Elloumi Fathi. (2004). *Theory and Practice of Online Learning.* Online book. Canada: Athabasca University.

Keegan, D. (1988). On defining distance education. In D. Sewart, D. Keegan, and B. Holmberg (Eds.), *Distance Education: International Perspectives* (pp. 6-33). New York: Routledge.

Ochoa-Alcántar J.M., Borders C.M, and Bichelmeyer B. A. (2006). Third Edition Principles, Practices, and Potential. in Pershing J. A., *Handbook of Human Performance Technology* (pp. 437-453). San Francisco: Pfeiffer.

Ministry of Man Power Decree RI number 2:2016. *Indonesia Competency Standardisation System*. Jakarta. Indonesia.

Pape Liz, Wicks Matthew and the iNACOL Quality Standards for Online Programs Committee. (2009). *National Standards for Quality Online Programs*. Viena: INACOL.

Paulsen Marten Flate. (2003). *Online Education: learning Management Systems*. NKI Forlaget, Hans Burumsvei 30, N-1357 Bekkestua, Norway.

President Decree RI number 8: 2012. Indonesian Qualification Framework. Jakarta. Indonesia.

Romiszowski, A., and Mason, R. (2004). Computer-mediated communication. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology (2nd Edition)*. New Jersey: Lawrence Erlbaum Associates.

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UBIQUITOUS LEARNING INFRASTRUCTURE DESIGN BASED ON MOODLE FOR HOME SCHOOL LEARNING PROCESS

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Abstract

Homeschooling has been existing in Indonesia for a long time. The meaning of homeschooling (HS) is an alternative learning model other than regular schools. One of general meanings of homeschooling is a family that chooses to take responsibility of their children education by themselves using home based system. In homeschooling, parents are fully responsible on the process of their children education, while at regular schools that responsibility is delegated to teachers and the school system. All education systems have their own strengths and weaknesses. One system is suitable for a certain condition while the others are more suitable for different conditions. The school education system is a general system that has been practiced for years. At the present time, school education is the only option for most of people, even though school is not the only place for students to get education. School is only one of the places for students to learn and get their education. To look at school as an institution and the learning system, it is not perfect. That's why there is always an innovation chance to fix the education system; whether in the level of philosophy, institution, approach, or others. Homeschooling is a rational alternative education for parents because it can facilitate students learning style. The design model system that has been used is Dick and Carey model. The process of making u-learning system has been done with Modular Object Oriented Dynamic Learning Environment (MOODLE) software that is designed for internet based learning system and website by using the principal of social constructionist pedagogy.

Keywords: Homeschooling, Moodle, U-learning, Dick and Carey model.

INTRODUCTION

All this time, when students learn, they seem become the curriculum object. On the other words, the learning activities that have been hold do not make the curriculum is applicable for the students but on the other way around, they have to follow the curriculum. Because of that, they are pushed to adapt themselves with the curriculum. Ideally, it's the curriculum that should be adapted with what the students need, and every student has a right to posses the curriculum that he or she wants to follow.

Homeschooling treats students as a learning subject, and they can choose any learning materials that they like which are suitable with their learning style.

Based on an observation that has been done by asking questions to some home schools, a community learning process still has some weaknesses. For example, when students can't come on the time scheduled because they are sick or they have other activities, so they will be left behind in learning their material. The students that must be listed in one of communities and sometimes there are differences in the learning material between communities. There are limited choices of learning subject, and there is only a little and limited socialization time regarding about information for the students. The weakness of the second method (distance learning) is parents who have a big impact in the student's success because the parents are the facilitator.

When the students are sick, busy or they have something else to do, the learning and teaching process are not maximizing. Other than that, when parents don't understand the learning material, it's difficult for them to deliver the material to the students, so parents dependant towards the community and learning material becomes very high.

Ubiquitous learning (u-learning) is a learning technology that can be done anywhere and anytime by combining mobile gadget features like GPS, RFID, Bluetooth, Wimax, Wi-Fi and context-aware technology, Transparent Interfaces, and Capture Experiences. The word of *ubiquitous* comes from Latin word that means "available everywhere". Ubiquitous term is often used in information technology after a researcher on PARC (Xerox's Palo Alto Research Center) named Mark Weiser, came up with "ubiquitous computing" concept in 1988. It is an improvement of computer function method by making a device that is available around us, but the device doesn't seem visible for the users. Meanwhile, according to Marcia Riley from Georgia Institute of Technology, Atlanta Ubiquitous Computing or "calm technology" is an innovation model where the technology seems invisible. Yves Punie and Marcelino Cabrera (2006: 27) explained that there are two main perspectives in ICT role: (1) ICT as a learning subject, and (2) A learning process using ICT.

By building u-learning facilities, students are not only able to choose teachers and learning materials that they like without time or space limitation, but also to choose what are suitable (ubiquitous) with their learning style. Besides that, students are able to socialize with each other in a forum and chat with their teacher or other students directly. For the teacher, he or she is not limited by one of the homeschooling communities only in delivering the material, because all students can learn and communicate directly anytime and anywhere.

LITERATURE REVIEW

Some of the steps that should be prepared in designing a u-learning system are:

Need Assessment

Need assessment is a systematic way to determine a discrepancy between the present situations with the future situation that we want. Need assessment can also be identified as a systematic process to determine the purpose, to identify the difference between the present conditions with the future condition that we want, and also to determine the action priority that will be done. (Lee, William W and Owens, Diana L, 2004) Picture 1.Need Assessment

Dick and Carey model (1990) on picture 2, is one of the instructional models that is suitable with our needs and it often be used in making a learning design. The process of identifying needs is as follow: to identify the present condition and the job that we want, to put the aims in order according to the needs, to identify the differences, to determine positive factors and the action priority. Need assessment should be completed with a questionnaire assessment and it should set up a data collecting procedure, also analyze the data to get important information that can be useful for the learning process. To do the analysis, we need to collect the data by using some techniques such as filling out questionnaires, interview, simulation and observation. The questionnaires can be filled out by e-mails or paper based

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questionnaires. The interview can be done by phone or face to face. The simulation can be done by using a mockup or software.

Front-End Analysis

Front-End analysis is a data collecting technique that can be used to bridge the discrepancy between the reality and hopes in solving the problem in Figure 3. Front-end analysis

a) Participant analysis
   The aim is to find out the background, characteristic and basic knowledge of the students. There are some data that related with the students like the skill of working in a team, computer training experience, language skill, other training that has been followed, and special skills that are relevant with the learning objective. There are 4 activities in analyzing participants. They are 1) Demographic analysis and special demand, 2) To determine attitude towards the learning material that has been mastered, 3) Communication skill in a certain language that is needed, 4) Documents that are possessed.
b) Technology analysis
   The aim is to identify technology skill that are owned such as telephone, e-mail, chat room technology and list of server technology by analyzing to support the performance, testing and scoring, distributing and shipping of multimedia products, also by analyzing skills and documents that are possessed.
c) Situation analysis
   The aim is to determine the basic consideration in solving problems. Mastering the working environment is the best way to achieve the expected aim. By analyzing the working environment or working situation, we can design the working strategy to maximize the distribution process and the work result delivery.
d) Task analysis
   In doing task analysis, the theory that should be used is the adult learning theory. According to Knowles, there is some component that should be noticed for adults in learning.
e) Issue analysis.
   There are three steps that can be done in issue analysis. First, to gather data from the students (participants), technology, the situation that we are dealing with, tasks, and critical incident analysis. Second, to place the suitable data into analysis form. In that case, that can be sorted into three factors (organization, performance, and training). Third, to document the results.
f) Critical Incident analysis
   The next analysis is critical incident analysis. This analysis is important and needs to be done in order to determine what material that must be taught and what material that mustn't be taught. We do that analysis so that we can effectively determine the performance that will be done. Besides that, we can also find out what is expected, including the problem's solution that we are dealing with.
g) Objective analysis
   The aim is to determine what will become the content (knowledge material) and how to make it effective, measured by the success, also to choose media

that will be used. In order to do that, there are five learning domains that should be noticed. They are cognitive, affective, movement, psychometric, and Meta cognitive. The procedure of the analysis can be done with the following process: 1) To set up a domain, 2) To determine the level, 3) To write the aims that we want to achieve, 4) To write the performance aims, 5) To discuss in a group, 6) To sort the aim among the performance aims, 7) To sort the learning aim among the performance aims.

h) Media analysis
On the next step we can set up a media that we need. Media analysis is something important in achieving the learning success. According to Lee and Owens, there are some media types as mentioned below:
- Instructor-led (The material is presented by a teacher);
- Computer-based (Kinds of material using computer as a tool);
- Distance broadcast (A long distance learning using broadcasting media like TV or radio);
- Web-based.

i) Data analysis
The ninth step is Extant Data Analysis. The aim is to solve problems that we are dealing with.

j) Cost analysis.
The final step is cost analysis. There are three steps in cost analysis:
- To implement the cost-benefit analysis;
- To determine return on investment;
- To document the results.

DISCUSSION

To develop u-learning

There are some stages in developing u-learning. One of them is the developing stage. The aim is to build the system and technology of u-learning.

Phase one: To make a document of learning implementation process

The first main thing that should be built in u-learning system is a document that describes the series or the sequence of learning implementation process. It's compulsory for the instructors, assistants, or students to understand what needs to be done before, during, and after the learning process. As you can see on picture number 4, every learning material is available with description and explanation. Picture 4. LMS in homeschooling

Phase two: To construct and make a configuration of infrastructure network

Infrastructure network is the foundation of u-learning technology, because it is a physical installation from electronic communication media that will be used by the available application. Infrastructure network can be existed by installing one building network cable, fiber optic, and Wi-Fi. Show in Picture 5. Network Infrastructure (Hirsch & Ng, 2010).

Phase three: To produce and make a configuration of management system learning application

Based on the architecture design that has been developed before, an application of management system learning can be built, and the steps that have to be planned are:

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- To define the system needs in details;
- To transform the needs into a technical document;
- To make a program that consists of components and features as needed.

Figure below is a management system learning (LMS) that has been built in this research.

Phase 4: To produce the material and digital content

After we build the application, now it's time to produce the material and digital content that are needed. Based on a schedule that has been given before, each party who is given a task will produce a digital learning object based on the agreeable standard. In making the learning object, these following steps are needed to be done:

- Make sure that the learning object is made based on the developed design from the previous phase;
- Make sure that the learning object is being developed by using the application (language programming and database);
- Make sure that the learning object is using the standard format that has been decided before;
- Make sure that the learning object has been tested to ensure that it has the expected features and performance;
- Make sure that the completed learning object is declared formally as a formal complete content with the version.

Phase 5: To upload the material into a u-learning application

Based on the application that has been built and the material that has been produced before, the final step that must be done is to transform the digital content into the application. There are some strategies that can be used in "connecting" u-learning application with the electronic content. The methods are mentioned below:

- To upload it directly to the available application, so that becomes an inseparable part from the system that has been built;
- To upload the content to other application such as Youtube, Googledrive, Dropbox and others, then connect it by using a link to save the memory significantly;
- To copy paste the content into an application part that has been prepared;
- To integrate a few links into a package of integrated entity (file compression like .zip, .rar, and others).

CONCLUSION

U-learning is not a new phenomenon. The system that has been built is useful for facilitating learning and improving student's performance in homeschooling. To design u-learning, we need to prepare the steps by using a suitable model with the learning aim. In this case, we choose Dick and Carey model so that u-learning system for homeschooling can be created successfully using MODDLE software and it can run well according to the needs. Because of u-learning as part of open source and the system that has been built, we hope it can improve the human resource quality, especially in using information technology and communication system that is based on open source. We also hope it can improve the learning and teaching process that can be done anytime, anywhere and based on student's talent and interest.

REFERENCES

A.Widhiarta, Putu. (2007). Ubiquitous Computing–Era Ketiga dari Revolusi Komputer. Jakarta: IlmuKomputer.com.

Brown JS, Collins A, Duguid P. (1989). ituated cognition and the culture of learning. Educ. Res: Vol. 18, No. 1 (pp. 32–42). *DOI:10.3102/0013189X018001032.*

Bloomberg, L. E. (2007). Culture and community: Case study of a video-conferenced graduate distance education program. *Journal of distance education: Vol. 22, No. 1* (pp. 41-58).

Dick,W., Lou Carey & Carey, James O. (2001). *The Systematic Design of Instruction*. Longman Publisher.

Gronlund, N.E. & Linn, R.L. (1990). *Measurement and evaluation in teaching.* NewYork: Macmillan Publishing.

Hwang, G.J, Tsai C,C, & Yang, S. J. H. (2008). *Criteria Strategies and Research Issues of Context-aware Ubiquitous Learning Education Technology & society: Vol. II, No. 2* (pp.81-91).

Hirsch, B., & Ng, J. W.P. (2010). *Education Beyond The Cloud: Anytime-Anywhere Learning in a Smart Campus Environment*. Retrieved from http://www.ankabut.ae.

Lee, William W. & Owens, Diana L. (2004). *Multimedia-based Instructional Design.* San Fransisco: Pfeiffer.

Rahardjo, Budi. (1999). Ubiquitous Computing. Handout, PPAU Mikroelektronika Bandung: ITB.

Sharon E. Smaldino, Deborah L. Lowther & James D. Russell. (2012). *Instructional Technology & media for Learning*. Translated By Arif Rahman. Jakarta: Kencana.

Stephen J.H Yang. Context aware ubiquitous learning environments for peer to peer collaborative learning. *Educational Technology & society: Vol.9, No. 1* (pp. 118-201).

Tri Darmayanti, Arifah Bintarti, Sri Suharmini W. (2014). Prototipe kuliah umum berbasis ubiquitous learning pada pendidikan jarak jauh. *Jurnal Pendidikan Terbuka dan Jarak Jauh: Vol. 15, No. 1* (pp. 32-42).

Yves Punie & Marcelino Cabrera. (2006). The Future of ICT and learning in the knowledge society. *European Communities Luxembourg.*

https://moodle.org/

http://www.elearnspace.org/Articles/elearningcategories.htm

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INSTRUCTIONAL DESIGN ALGORITHMS AND PROGRAMMING BASED MOBILE LEARNING

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Abstract

Often with the times and the era of globalization, marked by the products and the utilization of information technology, the concession holding learning has shifted its efforts embodiment of modern learning. Internet technology into a new trend that allows learning (mobile learning). Internet access is no longer limited to the computer device or laptop; it can be accessed by smartphone devices. The combination of Internet technology and telecommunications enables the development system M-learning is considered as a platform for online learning that can be accessed anytime, anywhere and anyone using (mobile) portable devices such as cell phones, smart phones, palmtops, tablets and multimedia players portable. Learning platform can serve contemporary pedagogy in various contexts of education; Feature Game is one of the features included in the M-Learning, as an interesting game and can cause learners to focus on. Instructional design framework, the proposed emphasizes four core components for mobile-enabled learning environment, the resources, activities, support and evaluation. M-Learning Application created consisting of the client side exploit mobile devices, interacting with the server via a web-server.

Keywords: Learning, Algorithms and Programming, Mobile Learning, Game

INTRODUCTION

Background

In the last decade, mobile technology such as Smartphone and tablet computers have become a new kind of computing platform that can be used to push beyond the boundaries of traditional science education. With the promise and potential of using mobile devices in education quickly became apparent, and there is a topic of interest among the academic community and practitioners. Technology has become affordable and accessible for use in schools, and educators have witnessed the rapid development of technologies available for teaching and learning (Fey et al., 1984). Mobile learning is defined as "Learning in multiple contexts, through social interaction and content, using personal electronic devices" (Crompton, 2013: 4). The learning method is no spatial or temporal restriction, which allows learners to learn anything with more unique approach is learner-centered (Crompton & Taxler, 2015).

Aim

The purpose of this paper is to present a collection of basic theoretical and empirical findings to describe affordances incorporate mobile learning into their teaching. This paper provides concrete examples of how a mobile device can be used to expand the boundaries of traditional science education and strengthen the understanding of learners in the learning with mobile phones, namely:

1. How to create a process of learning algorithms and programming courses become more interesting and can be accessed anywhere and anytime?
2. How mobile learning can impact on education and pedagogy, especially algorithms and programming courses?

LITERATURE REVIEW

The technological advances in mobile computing and wireless communications offer the potential for productive design and support the learning situation in some context. Increased successful case studies of mobile learning serves to inform educators about this possibility and can ultimately change our conception of educational practice (Goodyear, 2011). Changing technology, education and training situation changed. Learning to change approach. What this means in conducting research related to educational technology? It can not be denied that the task of designing effective instruction has become increasingly difficult as a result of all the changes mentioned earlier. More and more resources are available, the greater the challenge in selecting, order and suggest appropriate resources to support learning. The greater the ability to communicate easily, affordable and quickly with others, the greater the challenge in supporting and orchestrating collaborative learning activities. Unfortunately, the increasing challenges faced by instructional designers that are too often ignored in policy-making and high-level planning.

As a researcher in learning enhanced technology, we are engaged in designing, implementing, and analyzing technology-enhanced situation didactical, also disseminate information with a focus on sharing our insights, as researchers and educators, and the implications of teaching in connection with the situation didactical particular, where learners invited to work in small groups in the context of the outdoors with tasks (Crompton & Taxler, 2015).

Means as educators, researchers, developers, should think that mobile learning holds tremendous promise for our education system, with the potential to open up a new world of educational opportunities for children today (McQuiggan, 2015).

Learn

Learning can be defined as a process which, when successful, is characterized by stable and enduring change in a person, or a group of people, know and can do. Learning is essentially about change-change that survive. To argue that a change has occurred, the person must have a compatible basic measure taken after the order of instructional or educational experience (Spector, 2013).

Electronic Learning and M-Learning

E-Learning is an Internet application that can connect between educators and learners in an online learning space. E-Learning was created to overcome the limitations between educators and learners, especially in terms of time, space, conditions and circumstances (Darmawan, 2014). M-learning is considered as a learning platform by using (mobile) portable devices such as mobile phones, smartphones, palmtops, tablets, and portable multimedia players (Churcill, 2016). M-Learning is an activity that involves “Learning in multiple contexts,through social interaction and content, using personal electronic devices" (Crompton, 2013: 4). Physical context which learning takes place ranges both inside and outside the classroom, with some students to go outside the school building. Context for learning dynamic switch back and forth between physical concrete objects (dolls and rubber bands) and computer mediated (Spreadsheet) models which in turn helps the learner

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to move between context and abstract thinking. social interaction among peers within teams and between different teams is central pedagogy (Peña-Ayala, 2016).

Program Games

The game is designed to incorporate algorithms and programming skills as a major part of the gameplay. For example, on topics such as basic construction, the goal is to identify the common factors of the types of construction. Therefore, the objective of the game is to identify the types of instruction of the basic structure of different algorithms. The game is designed so that skills and programming algorithms embedded into the game as the main part of the gameplay. Features Game is one of the features included in the M-Learning, as an interesting game and can cause learners to focus on. These games can motivate and retain the attention of learners'. This is the ideal quality that is lacking in education today (Crompton & Taxler, 2015).

Education technology

Educational technology is an activity that uses technology to support and facilitate learning and teaching. It is a core task for the education system. Just as technology is the application of knowledge objectives for the benefit of individuals and society, education is the development objectives of knowledge and understanding for the benefit of individuals and society (Dewey, 1910, 1938). The goal is to make learning interesting, effective and efficient. Learning is a process of learning that takes place, and the involvement of students with the content, concepts, issues, and principles.

Roadmap for Technology Education (Woolf, 2010) identified a similar trend, including: (a) a more personalized education, (b) more emphasis on assessment, and (c) increase the emphasis is on social-learning. Showed a trend toward connecting learners and educators, more emphasis on network learning, virtual learning environment more precise contextual and games, and more standardization of instruments and resources (Spector, 2013).

Research In The Field Of Educational Technology Different Educational

Technology research with applied research. The basic approach is to take the basic research such as studying human psychology and apply basic research findings, related theories and prior findings of applied research to improve learning and teaching (and sometimes without) technology. Typically, such interventions involve technology involved in efforts to resolve or repair the problematic situations that involve learning, instruction, training, performance improvement, or more on the processes involved in planning, implementing, deploying, managing, and evaluating the application of technology to improve learning, or performance (Spector, 2013).

Definition of a Field of MUP-Learning

MUP-Learning is a term coined to highlight the learning environment enhanced as a result of the confluence of three lines of research for the three lines converge (eg, m-learning, u-learning, and a p-learning) as follows, namely:

1. M-learning, mobile-learning is essentially the mobile computing, also called nomadic computing, means the use of portable computing device in conjunction with a wireless communication technology to enable users to access and

synchronous and asynchronous data transfer, interact with applications, and collaborate with co-colleagues.

2. U-learning, Ubiquitous-Learning is the main element underlying ubiquitous computing, the concept envisaged by Mark Weiser in 1991 that, people should be able to work with a computing device without having to acquire the technological skills to use it. The goal of ubiquitous computing is to create a new relationship between people and computers. u-learning is defined by Hwang et al., that "learning environment in any enable learners to access content anywhere, anytime, no matter whether the wireless communication device or mobile working. u-learning refers to learning with mobile devices, wireless communications, and sensor technologies that together enable the environment be aware of the user, and the user immersed in an authentic learning experience.
3. Pervasive-learning, this line supported by spreading computing, is a model of human-computer interaction in which information processing is integrated into daily activities.

From the above definition, the MUP-Learning tends to create a kind of learning experience, where learners are free to move freely throughout the indoor and outdoor settings using mobile devices, which deliver educational content available anytime, anywhere, and remain in improved learning approaches (Peña-Ayala, 2016).

DESIGN M-LEARNING

Amid the current developments, technologies intersect with mobile technology devices. Internet technology into a new trend that allows learning (mobile learning). Internet access is no longer limited to the computer device or laptop, it can be accessed by smartphone devices. The combination of the Internet and telecommunications technology allows the development of M-Learning system that is on the client side exploit mobile devices, interacting with the server through a web – server (Riyanto, 2006).

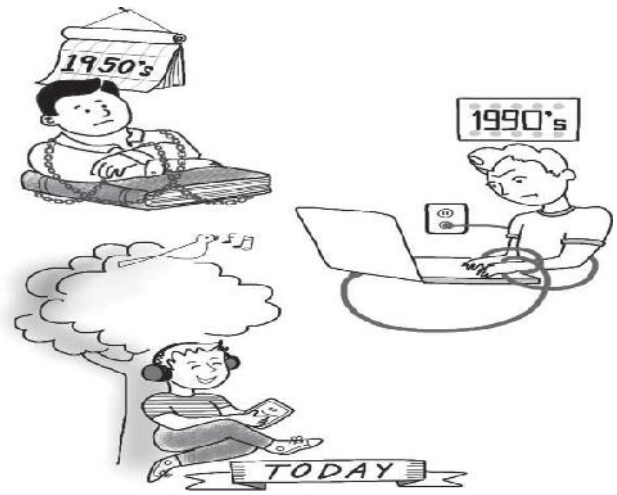

Figure 1: Technology Changed Learning Experiences of Students.

M-Learning is a combination of E-Learning and Mobile Learning can access an application of learning anytime, anywhere and anybody. Learning the latest in

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mobile technology to support learning-based smartphone is utilizing spontaneous learning situations. Thus, in designing the M-Learning needs to approach learning scenario mixture by combining different forms of learning and integrate a variety of ways to access content, such as web-based, desktop and smartphones. Desktop computers, laptops, and netbooks are the most common technology used by schools to early 2010 when Apple released the iPad, which creates a new category for mobile devices: tablet computers. Featuring touchscreen technology, increased portability, Wi-Fi, and an intuitive user interface, the iPad presented for digital learning. Soon after, the competing tablet appeared on Android operating system (McQuiggan, 2015).

Mobile learning offers a new approach to reach out and offer flexibility in when learning takes place, personalized content, and teach relevant skills for the future. Since Apple has put the iPhone on the market and Google has offered a more open for the mobile operating system (Android), mobile learning has become more effective learning scenario is characterized by three important factors following (Ally, Grimus, and Ebner, 2014) (Crompton & Traxler, 2015):

- Communication: Ability to communicate about learning content and Our learning process (for example, with the use of social media).
- Interactions: Being able to interact with the learning content just in time (eg, podcasts).
- Application: Capable of learning with a wide range of different applications for a variety of learning problems.

Mobile learning is also a potential way to reach underserved children and schools. Mobile technology initiative, when compared with other technologies provide relatively lower cost per student for high technology powered and durable. Tablets are often cheaper than a computer, so when the inevitable upgrades and technological improvements to come, as well as updating the technology will be able to anticipate.

Learning situations needed to involve technical expertise, especially to coordinate Web and mobile technologies. In particular, educators will receive guidance and instructions on how to customize and organize tasks and technology. Thus, in addition to designing a learning situation for students adidactical also designing teaching situations so that educators can take full ownership of the situation without involving researchers and technical expertise.

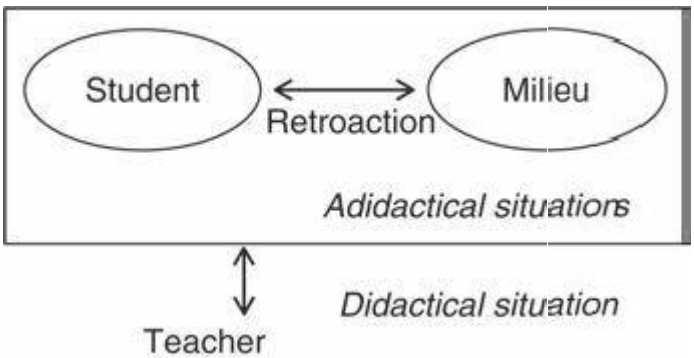

Figure 2: Situation In Situation Didactic Didactic (adapted from Balacheff, 2013).

The development of the theory and application of mobile technology in education at all levels. In particular, attention is given to the emergence of instructional design models and examples of mobile technology adoption case. This may indicate that mobile technology is currently offering a spectrum tool for teachers, educational opportunities as well as new options for students in the learning technology partnership (Churchill, 2016).

The most important aspect of an effective mobile learning today is the integration of mobile technology, social media and instructional design. An instructional design should serve as a strong intervention strategy to change the way teachers think in a productive (e.g., Churchill et al., 2013;. Churchill, Fox and King, Chapter 1 in this book). Technical features powerful of mobile technology, and mobile applications are available powered by social media and kloud computing enables new forms of learning platforms that can serve pedagogy contemporary in a variety of educational contexts (see Churchill and Churchill, 2008; Evans, 2008; Kaleebu et al., 2013; Lai et al., 2007).Mobile learning architecture can use the infrastructure that has been provided mobile operators, which in principle is a 3-tier application where there is a front-end layer, application servers, and database servers. Architecture is shown in the following Figure 3.

Figure 3: Architecture Mobile Learning

Based on the needs analysis determined that two kinds of needs functional requirements and non-functional requirements. The functional requirements include application users (educators, learners and administrators), facilities for educators in uploading material, add classes and evaluations, facility learners to upload learning materials and tasks and exams, and admin facilities for maintenance. While the non-functional requirements is a security system and operating system on the client and server. So the proposed instructional design framework, which emphasizes four core components for mobile-enabled learning environment, the resources, activities, support and evaluation as in Figure 4 below.

MUP-Learning, is a complete learning environment created to provide formal and informal learning to support academic studies, professional training, and lifelong learning.Mobile learning implies adaptation and development on the latest advances in mobile technology, redefining the responsibilities of educators and students, and blurring the lines between formal and informal learning. It embodies and facilitate an understanding of what it means to be a lifelong learner and what it takes to thrive in today's workplace.

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Mobile learning provides tools that enhance the ability to think critically. The Partnership for 21st Century Skills has set out four key skill for students to master at the school: critical thinking and problem solving, communication, collaboration, and creativity and innovation.

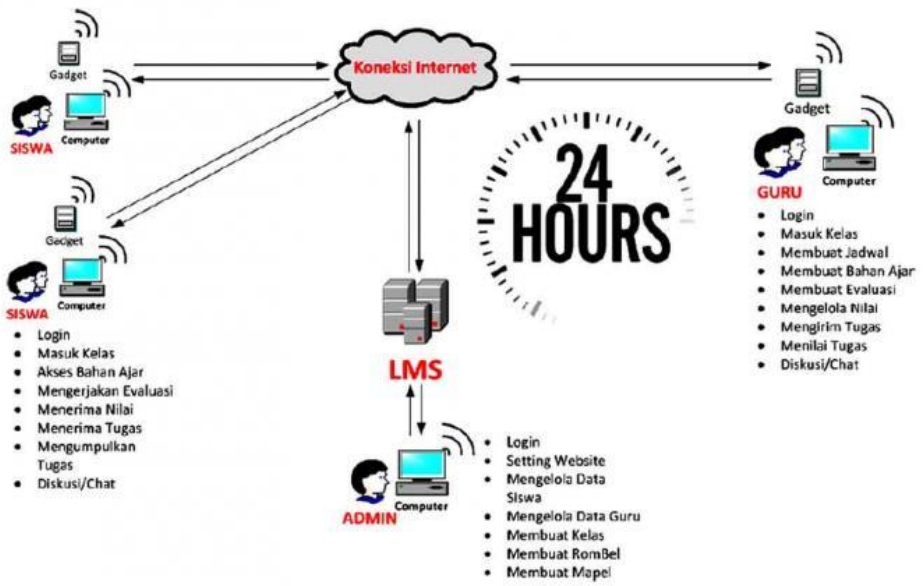

Figure 4: Mechanism MUP workflow-learning, education solutions in the 21st century adapted from the writings Agus Oloan

DISCUSSION AND CONCLUSION

When the information technology, especially the Internet, is growing rapidly, the world of education to develop technology-based learning model that became known as e-learning (electronic learning). E-learning itself becomes a learning model that is very challenging because a student will be able to take advantage of smart engine computer capable of running the animation, computational and modeling of sophisticated, accessing learning materials on the net, collaborate and discuss with many people from all corners of the world, and other ways of learning that has never existed in previous learning paradigm.

The presence of cellular technology promises considerable potential opportunities for the development of new models of learning, given the high level of device ownership and the price of the device as well as the rates are getting cheaper and more sophisticated features.

Learning mobile phone applications is expected to show excellent potential in the field of learning algorithms and programming. Game is a promising media for learning on mobile devices, and this is demonstrated in a case study that investigated mobile learning for learning algorithms and programming using the game. M-Learning applications can connect to the database server for their permission in Adroid that allows accessing the internet. The important aspect of an effective mobile learning today is the integration of mobile technology, social media and instructional design. Learning platform that can serve contemporary pedagogy in various contexts

of education, instructional design framework, the proposed emphasizes four core components for mobile-enabled learning environment, the resources, activities, support and evaluation.

M-Learning applications is expected to show excellent potential in the field of learning algorithms and programming. Game is a promising media for learning on mobile devices, and this is demonstrated in a case study that investigated mobile learning for learning algorithms and programming using the game.M-Learning applications can connect to the database server for their permission in Adroid that allows accessing the internet. The important aspect of an effective mobile learning today is the integration of mobile technology, social media and instructional design. Learning platform that can serve contemporary pedagogy in various contexts of education, instructional design framework, the proposed emphasizes four core components for mobile-enabled learning environment, the resources, activities, support and evaluation.

From the above explanation can we realize and feel how berpotensinya adoption of m-learning to the advancement of education in Indonesia. M-learning through education can be done anytime and anywhere without the constraints of time and place so that learning can be done effectively and efficiently in order to achieve the planned objectives.

Constraints development of m-learning actually lies in the pedagogical side. Will be the biggest challenge of how to develop a system or model of mobile learning effective and meet the goals of learning itself. This development should consider mobile learning environment in which they have their own unique characteristics. The material is presented-was not immediately move of e-learning materials or conventional materials, but must be designed and manufactured specifically. Until recently, little research and development that is focused to utilize this mobile technology as a means of education.

REFERENCES

Churchill, D., Lu, J., Chiu, T. K. F., & Fox, B. (2016). *Mobile Learning Design, Theories and Application*. Singapore: Springer.

Crompton, H., & Traxler, J. (2015). *Mobile Learning And Mathematics: Foundations, Design, and Case Studies*. New York: Routledge.

Darmawan, Deni. (2014). *Pengembangan E-Learning Teori dan Desain*. Bandung: Remaja Rosdakarya.

Eisenman, Bonnie. (2015). *Learning React Native, Building Mobile Applications with Javascript.* Tokyo: O`Reilly.

McQuiggan, Scott. (2015). *Mobile Learning A Handbook for Developers, Educators, and Learners*.

Peña-Ayala, Alejandro. (2016). *Mobile, Ubiquitous, and Pervasive Learning Fundaments, Applications, and Trends*. New York: Springer.

Riyanto, B. (2006). Perancangan Aplikasi M-Learning Berbasis Java. *Prosiding Konferensi Nasional Teknologi Informasi & Komunikasi untuk Indonesia 3-4 Mei 2006* (pp. 386-392).

ISBN 978-602-73030-1-0

Spector, M. J. (2013). Trends and Research Issues in Educational Technology. Keynote Presentation at IETC-2013 in Kuala Lumpur, Malaysia, 13 May 2013.

https://mhs.blog.ui.ac.id/david.lawrence/2016/06/17/keunggulan-gamification-multimedia-mobile-learning

https://alisadikinwear.wordpress.com/2012/07/07/mobile-learning-m-learning-solusi-cerdas-pembelajaran-terkini

http://www.ispi.or.id/2011/03/20/revolusi-dan-inovasi-pembelajaran-melalui-mobile-learning/

http://achibudiarti.blogspot.com/2010/01/revolusi-pembelajaran-melalui-mobile.html

http://www.kompasiana.com/itnaibaho.blogspot.com/pendidikan-e-learning-solusi-pendidikan-indonesia-berkualitas-tanpa-batas

DESIGN E-LEARNING INFRASTRUCTURE BASED ON OBJECT ORIENTED MODULAR DYNAMIC LEARNING ENVIRONMENT AS AN EFFORT TO HELP STUDENTS AND TEACHERS IN LEARNING PROCESS HOMESCHOOLING

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Abstract

One of the main objectives of the use of e-learning in the learning process is for facilitating learning and performance improving learners, reviewing the literature on the use of e-learning in the context of learning by using e-learning, demonstrate that researchers and practitioners to consider a number of important aspects to ensure that e-learning is a part incorporated in the learning source for optimizing the experience of learners, for the use of e-learning as a supporting system in the field of learning. Homeschooling is an alternative model of learning other than at school. All education systems have advantages and disadvantages. One system suitable for certain conditions and other systems better suited to different conditions. That is why; there is always a chance of renewal to improve education systems. System design method used to create this system is a model ADDIE. Making e-learning is done with the help of software Modular Object-Oriented Dynamic Learning Environment (MOODLE) which is a software package produced for the internet-based learning activities using the principles of social constructionist pedagogy.

Keywords: homeschooling, Moodle, E-learning, social construtionist pedagogy

INTRODUCTION

Law No. 20 of 2003 on National Education System accommodates homeschooling as an alternative learning done by the community. In practice, homeschooling is under the auspices of the Education Equality Directorate, Directorate General of School Education and the Ministry of Education. Students who choose homeschooling will obtain a diploma equivalence issued by the National Ministry of Education at the primary package a, package B and package C equivalent to junior high to high school level. This diploma can be used to pass a formal school education or higher.

Homeschooling community in Indonesia, currently numbering about 200, are many and varied, between one community to another community has a different vision and mission. So also with the media and means of the learning process.

The learning method of homeschooling that is currently used is through face to face in the community, where participants gathered in a classroom to learn together while socializing with friends, in the community of schedule study participants were determined by community organizers, the second method is mostly applied is Distance Learning, where participants learn at home with the module and parents play a major role as educators. In this method of distance learning, study schedules are prepared according to the agreement between the participants and parents.

Based on the observations that have been made, the learning process through community-face, still has the disadvantage that when a predetermined time a student

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can not attend for any reason, such as illness or are there any other activities, the students will be disadvantaged because they missed the materials, students must be registered in one community, teaching materials between the different communities, a limited selection of teaching materials, the socialization of students is limited. Distance learning methods to two weaknesses that parents have a big impact in the success of children, because the parents as a facilitator, if for any reason, for example illness or other duty in the family or other work, the learning process becomes not optimal. Not to mention, when the topic is not understood by parents, then the parents will have difficulty in providing an understanding of teaching materials to children. The dependence of the elderly in the community and teaching materials to be very large.

Of the problems to the weaknesses such, there should be an effort to get it done, this research may help provide a solution to improve the teaching and learning process homeschooling through Design Infrastructure e-learning, intended as facilitating learning and performance improving learners to help the community or teaching individuals in the learning process using information technology media means in the form of a web that can be accessed via the internet.

LITERATURE REVIEW

E-learning Definitions

Figure 1, According to (www.elearninggGuild.com, 2002) e-Learning is content and instructional methods delivered on a computer (whether on CD-ROM, the Internet, or an intranet), and designed to build knowledge and skills related to individual or organizational goals. While according to (Outsat, 2005). There are many definitions and assumptions regarding the question "What is e-Learning?" While many are correct to a certain point, very few seem to capture the essence of what e-learning is. Here are some common definitions:

- Education via the Internet, network, or CD-ROM.
- Electronic transfer of skills and knowledge.
- The component of distributed learning that includes digital content, is experienced through a technology interface, and is Internet-enabled.

  All of the above are correct, but they could just as easily be describing a shared document, a PowerPoint presentation, a Knowledge Base, or an online book. Good e-Learning is much more than that. The following definitions better capture the essence of e-Learning.
- E-Learning is a vibrant, dynamic, and exciting way to learn new skills and concepts.
- E-Learning is all about learners–capturing their attention with content specifically designed to meet their immediate needs in a self-paced and comfortable environment.
- E-Learning is interactive, holding learners' attention by involving them in the learning process every step of the way.
- E-Learning allows learners to learn by doing, by being involved, by receiving immediate feedback, and by allowing them to monitor their progress with quizzes, tests, and handson activities.
- E-Learning uses learners' senses–appealing to their auditory, visual, and tactile senses

Homeschooling

In Indonesian, translation of homeschooling is "home school". This term is used officially by the Ministry of National Education (DEPDIKNAS) to mention

homeschooling. In addition to home schooling, homeschooling is sometimes translated by the term independent school. Homeschooling is an alternative educational model in schools. The common understanding is homeschooling education model in which a family chooses to be solely responsible for the education of their children and educate their children to use the house as a base education. Parents are responsible for actively on their children's education. Responsible actively here is the full involvement of parents in the process of education, starting in determining the direction and purpose of education, values (values) are to be developed, intelligence and skills that would be achieved, curriculum and learning materials to the learning methods and practices a child's everyday learning (Sumardiono, 2007).

Five requirements that must be owned by a parent who wants to run homeschooling, that loves children, creative, friendly with children, understanding children, and have a willingness to learn competency standards and national curriculum standards.

The learning process of homeschooling families can utilize existing facilities in the real world, such as educational facilities (libraries, museums, research institutions), public facilities (parks, stations, roads), social services (parks, orphanages, hospitals), as well as facilities business (mall, exhibits, restaurants, factories, fields, plantations). In addition, homeschooling families can use private teachers, tutors, children enrolled in a course or club hobby (comics, film, photography), and so forth. Internet and audio-visual technology is growing is also a learning tool used by homeschooling families (Sumardiono, 2007).

In essence, both homeschooling and public schools, both as a means to deliver children achieving educational goals as expected. However, homeschooling and schools also have some differences. In the school system, the education of children is delegated the responsibility of parents to teachers and school administrators. In homeschooling, the responsibility of the education of children rests with the parents. Standardized school system to meet the needs of children in general, while the homeschooling system tailored to the needs of children and family circumstances. In school, learning schedule has been determined and uniform for all students. In homeschooling flexible learning schedule, depending on the agreement between children and parents. Centralized management in schools, such as setting and determination of curricula and teaching materials. Management at the decentralized homeschooling family's wishes. The curriculum and teaching materials have been selected and determined by the parents.

It can be concluded that homeschooling is an alternative education, where parents play an active and responsible for organizing their children's education by using home as a base of education and child can learn in different situations, conditions, social environment that is constantly evolving. Homeschooling learning process is flexible in terms of both time and the children's desire to learn in accordance with the interests and potential independently and discipline.

The ADDIE Model of Instructional Design

It may also be helpful to consider any development process within the context of an Instructional Design Model, such as the ADDIE Model. Most contemporary Instructional Design Models are based to some extent on the ADDIE model as shown below. The basic premise of the ADDIE Model is as follows:

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a) Analyze–The Analyze stage is where the learning problem is identified, defined, and possible learning solutions determined. Steps include: identifying the learning need, identifying the constraints, analyzing the audience.
b) Design–The Design phase should produce an effective curriculum and storyboard that will achieve the desired learning outcomes when implemented. Steps include: identifying the learning outcomes, collecting the available resources, determining the delivery mode, choosing your tools, creating a script/storyboard for your lesson/course.
c) Develop–The Develop phase is where the actual development of the lesson plans and materials takes place. All instruction, media, supporting documentation, and any appropriate hardware and/or software are prepared.
d) Implement–The Implementation phase is concerned with the effective delivery of the instruction. The implementation of the instruction should ensure learners' understanding of materials, support the mastery of objectives, and promote the transfer of knowledge from the instruction to the job.
e) Evaluate–The Evaluation phase measures the effectiveness and efficiency of the instruction. This phase should happen on a regular basis throughout the entire instructional design process and may be Formative or Summative.

DISCUSSION

Based on the scope of the materials to be delivered, and then made plans and implementation of e-learning development with reference to the ADDIE approach. At each stage, do research and brief observations to determine the scope of the system to be developed. The results of each stage can be seen in Table 1.

Table 1: Stage of development

Phase	Activity	Result
Analysis	• who was involved in the system	• The system administrator can do anything in applications such as managing users and user roles, managing the required data systems, such as data learners and oversee the use of the system. The next actor learners (students registered, not registered learners, and learners anonymous). Register, login, anonymous, logoff, fill out the questionnaire, pretest working, studying learning materials, working on the final test, view profiles, profile editing and password. Actor tutor edit teaching materials, upload learning materials.
	• Who learners? • How the budget • What constraints are there? • What should be done	• Elementary and junior high school • Autonomous development • Internet connection • answering questions correctly

	to determine the competence of their students? • When will the project be completed?	• Not specified
Design	• Selection of the most appropriate learning environment to learn what kind of cognitive skills • Make instructional design • Choosing an overall approach, shape and appearance	• The learning environment can be done independently • Design Instructional • Teaching materials
Develop	• Production or collection of media required • Defining appropriate interaction, which should be in the form of creative, innovative?	• Teaching material (file pot, pfd, audio, animation) • Interactions: students can run applications independently, navigation and exploration is not limited by module, but in accordance with the desire of students to explore.
Implement	• distribution Application	• Has not been done, the application was developed to prototype stage
Evaluate	• Evaluation of student learning outcomes • Evaluation of students' response to the application	• Has not been done, the application was developed to prototype stage Formative evaluation is done when the development process is underway with the aim to become a better product before the product is used widely. Formative evaluation consists of ongoing evaluation, testing alpha and beta testing. a) Ongoing evaluation: all links/link work, there is no error in the application, there are no elements that cause the system to a standstill, no misconception/materials, no errors Grammar and spelling, the material does not confuse and selecting font type and size appropriate, no excessive use of color, layout matching. b) Alpha testing is performed by providing a list of questions to evaluator based material aspects, aspects of the user interface and pedagogic aspects.

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		c) Beta testing is a comprehensive evaluation by the user of the e-learning products that have been repaired on stage of alpha testing by using the respondent and the evaluator. Summative evaluation is done when the product has been completed and ready for use by users at large. Kirkpatrik using a model consisting of 4 levels. a) Level 1, measuring the level of satisfaction of users of the e-learning products to create a questionnaire. b) Level 2, determine the effectiveness of e-learning, if proved students have studied in accordance with the material, the evaluation is done by making the initial test and final test of learning materials. c) Level 3, this evaluation is rarely done because the goal is to determine changes in behavior. d) Level 4, the final impact evaluation of learning, for example, increasing the value of learners.

CONCLUSION

Web homeschooling has been successfully created, expected homeschooling community and learners can use it. MOODLE is software that is very suitable for developing e-learning, because it is open source so it does not cost and has features that meet the needs. LMS has been built with homeschooling means have been providing easy access for the homeschooling community.

REFERENCES

Anggoro, M.T., Hardhono, A. P., Belawati, T, & Damayanti, T. Tutorial elektronik melalui internet dan fax-internet. *Jurnal Pendidikan Terbuka dan Jarak Jauh: Vol. 2, No. 1* (pp. 60-77).

Khan, Badrul. (2005). *Managing E-Learning: Design, Delivery, Implementation and Evaluation*. Hershey: Information Science Publishing.

Kirkpatrick, D.L., & Kirkpatrick, J.D. (2006). *Evaluating training programs the four levels (3rd ed)*. San Francisco: Berrett-Koehler.

Rosenberg, M.J. (2001). *E-Learning: Strategies for delivering knowledge in the digital age*. New York: McGraw-Hill.

Sumardiono. (2007). *Homeschooling Lompatan Cara Belajar*. Jakarta: Elex Media.

OutStart. (2006). *Best Practices for Creating E-Learning*. OutStart Trainer Development.

http://www.psikologizone.com/pengertian-homeschooling-indonesia/06511347

http://id.wikipedia.org/wiki/Moodle

http://www.elearnspace.org/Articles/elearningcategories.htm

http://rumahinspirasi.com/bincang-pendidikan-indonesia/aar-sumardiono-homeschooling/

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INSTRUCTIONAL MODEL NEEDS ANALYSIS BASED ON E-LEARNING

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Abstract

Interactive, informative and collaborative instructional which are some parts of student needs in teaching and learning process. These are offered by instructional model based on e-learning, besides, the easily of unlimited access is one of the characteristic instructional model online. These needs becomes close to the material or the contents of instruction. Otherwise, the chosen and management of the contents become something important in order that e-learning could give what the student needs. Besides, instructional program using trough appropriate technology is the one of the important thing to reach out the goal of this instructional model based on e-learning.

Keywords: instructional model, e-learning.

FOREWORD

The development of human being resources and education world cannot separate from technology based on computer, even just as tools for development media and materialized or as instructional contents. One of instructional system which has been developing in using technology based on computer is e-learning model education. Lately, e-learning more develop because of technology makes teaching and learning process more efficient. It could be seen from times, distances, and costs.

E-learning is offered new chances for teachers and students for enrich their experience in teaching and learning process through the real of environment which is supporting in transferring the material but also in explorations and implementation of the in formations and getting the new science. Thus for, e-learning is focusing on the most sophisticate combinations and characteristic convergence, i.e. video mobile phone and telecommunications audio, graphic three dimensions, email, website, and face to face were oriented object which all of these programmed for supporting, creating and giving the significance experience in educations and environments.

The success of e-learning system could be saw from the effectiveness on facilitating the education activities and human being resources development, i.e. on the transferring the materials instructional process, social interaction and communications between individuals and also the reach out the goal of instructional based on e-learning. Thus for, the two main keys for reaching the affectivity of e-learning are, 1) the contents which is emphasized on student needs and also 2) using the technology for transferring the materials of instructional.

DISCUSSIONS

E-learning is study process effectively resulted trough combinations on transferring the materials instructional digitally which is consisted of supporting and servicing on teaching and learning process (Barbara,S., Wagner P., et al., 2008: 4).

Clark and Mayer (2003: 11) defined e-learning as training delivered on a computer (including CD-ROM, Internet, or intranet) that is designed to support individual learning or organizational performance goals. Besides, Rosenberg (2001: 28-29) explained e-learning has been using internet for transferring the solutions on enrich science and capability based on three criteria:

1. E-learning is networked which makes it capable of instant updating, storage/retrieval, distribution and sharing of instruction or information.
2. It is delivered to the end-user via computer using standard internet technology.
3. It focuses on the broadest view of learning solutions that go beyond the traditional paradigms of training.

Furthermore Rosenberg (2001) explained the excess of e-learning such as:

1. *Lower cost.* E-learning can decrease course cost then time for using in teaching and learning process and also decrease infrastructure class needs supply.
2. *Unlimited access.* E-learning can handle unlimited virtual users simultaneously.
3. *Contents variation.* E-learning could be pretend giving some another contents differently for teaching and learning process as students need.
4. *Up to date.* E-learning is very easy to do because of its' sophisticated.
5. *Universal.* E-learning can be appropriated with universal protocol, i.e. internet and browser.
6. *Communities.* E-learning has been supporting and facilitating on community formed with many various (self-) interests.
7. *Capable on handle many scale.* E-learning is the solution for many scales. It's just needs a little change on infrastructure and cost development.
8. *Services improvement.* E-learning can be able improving services on teaching and learning process effectively.

To construct e-learning instructional model at least it needs three important aspects which are main framework e-learning:

1. Contents

Content has important role on teaching and learning process because it related to students on teaching and learning process directly. Content is the object on instructional which is as success parameter trough various, contents and quality of content. E-learning system should be:

- Supplying the teacher-centered content characteristic. This content has feature procedural, declarative and also defined clearly.
- Supplying the learner-centered content characteristic. This content serves the outcomes from instructional focused on creativity development and autonomous maximize.
- Supplying work design. It's on the content of material for understanding and giving chances for practicing easily.
- Supplying educative games. As media designed, e-learning helps making questions (Rosenberg, 2001).

Based on the functions above, a good e-learning system should not need some contents, i.e.:

- Information. These information contents of materials transferred to users as materials will be followed. The type of information such as syllabus, news and announcement etc.

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- Instructional Material. This point consists of instructional will be transferred trough many forms. Such as texts, pictures, photos, graphics, presentation slides, animations, HTML, audio (script, audio streaming, audio recorded), video (video recorded, video streaming).
- Interactions and communications. This point facilitated interaction and communication process between the students to students or students to the teacher directly and indirectly.
- Assignment, test, and student evaluation. This item consists of assignment activity, test, and also evaluations for the students.
- Digital Resources. This point consists of instructional digital resources formed digital or online (Rosenberg, 2001).

2. *Technology*

Technological using in teaching and learning process became indicator technology chosen which means technology capable in facilitating transferring the information to the students efficiently and effectively.

Rosenberg (2001) said that the other things related to network infrastructure, i.e.:

- Connection network model is developing the connections trough 2 approaches: 1) Local connections (intranet) and, 2) global connections (internet).
- Band with. Capacity of Band With which is available should trough exact consideration and analyze specially on Bandwidth's needs.
- Location. Facilitating representative location even the easily location access, the easily hardware appointment and the safety network.
- Infrastructure management. This point has to enactive the infrastructure component process besides scant the platform to system process and also enactive the system access fluently.
- IT staff. Staff who has knowledge and technical skill on system platform e-learning and technology infrastructure management.

CLOSING

E-learning is one of instructional model using internet technology. E-learning (Electronic learning) is one of application aspect ICT in education institute. As media expected became part of instructional process in education institute, it should be able supporting for interactive communication process between teacher and students as requisite in teaching and learning process. The condition that should be able to support especially related to instructional strategy which will be developed. On the other words as communication activity has be done that can be stimulus for many students to do their homework, assignment and help them to get knowledge. Even tough, the adoption and using e-learning so wide in education world but it was proved exemplary and effective for transferring the instructional materials and efficient in using education institution resources component even it's so hard on the application. The difficulties rise up because of creating, using, and supporting for the facility of e-learning needs balance between infrastructure technical needs, human being resources (manager and user), institution and also pedagogy aspect.

LITERATURES

Branch, Robert Maribe. (2009). *Instructional Design: The ADDIE Approach*. New York: Springer.

Clark, Ruth C. Mayer, Richard E. (2003*). E-learning and The science of Instruction*. New York: John Wiley & Sons, Inc., Pfeiffer.

Hill, Melanie N. (1998). Staffing a distance learning team: whom do you really need? *Online Journal of Distance Learning Administration*. State University of west Georgia.

Marshall, S., & Mitchell, G. (2002). An E-learning Maturity Model? In A. Williamson, K. Gunn, A. Young and T. Clear (eds), *Proceedings of the 19th Annual Conference of Australian Society for Computers in Learning in Tertiary Education (Auckland, Australian Society for computers in Learning in Tertiary Education, 2002.* Retrieved from http://www.unitec.ac.nz/ascilite/proceedings/papers/173.pdf.

Rosernberg, Marc, J. (2001). *Strategies for delivering knowledge in digital Age*. New York: Mc Graw Hill.

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DESIGN OF E-LEARNING INFRASTRUCTURE TECHNOLOGY TO SUPPORT LEARNING WITH COMPETENCY-BASED CURRICULUM

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Abstract

E-learning has been widely applied in many colleges. To support distance learning requires a reliable information technology infrastructure, so that the learning process can take place properly and competence is expected to be achieved. The use of Moodle that is now in favor of learning has not been fully able to support the learning system with a competency-based curriculum (CBC). To support the CBC still needed a system that could not only emphasizes the mastery of the material, but also on the activity, the characters and the learning process of students who continuously. The method used in this study is *action research* aimed at finding an effective way that produces a deliberate change in an environment that is partially controlled, with the stages of analysis, design, prototype manufacture, testing and evaluation of this writing only reached the design stage. The resulting design is a model DLMS which is a merger of two DMS and LMS applications to meet the needs of the implementation of curriculum-based teaching and learning process.

Keywords: e-learning, competency-based curriculum, Moodle, LMS, DMS

INTRODUCTION

Learning with e-learning using technology as a means of learning should not be expensive and difficult. In the application of the technology used applications that can be directly applied easily and does not require a lot of expenses (nearly free). In the use of technology or application that is not paid, would approach common functions that many people use. It represents the excess once the application deficiencies. To customize the application with the required need to be modified by adding or subtracting the application content or combine several applications to fulfill the needs of the organization.

E-learning has been widely applied in many colleges. The Indonesian government has given the green light for the implementation of this system with the issuance of Regulation of the Minister of Education and Culture No.24 Year 2012 on the delivery of Distance Education in Higher Education. As stated in the Ministerial Regulation, Distance Learning is education that their students apart from educators and learning using a variety of learning resources through information technology and communications and other media.

To support distance learning requires a reliable information technology infrastructure, so that the learning process can take place properly and competence is expected to be achieved. Many factors key to success of e-learning based on the Quality Standard ISO/IEC 19796-1, one of which is "ICT tools should support management (measures and indicators)" (Pawlowski, 2007).

Virtual Learning Environment (VLE) or often called as *Learning Management System* (LMS) that is widely used today are using Moodle LMS. *"Moodle is a learning platform designed to provide educators, administrators and*

learners with a single robust, secure and integrated system to create personalized learning environments" ('About Moodle', 2015). With Moodle, e-learning can be done by using study materials, quizzes and evaluation. According to Aslam Moodle is not (yet) have supporting facilities Learning Model *(Student Center* and *Based on Process)* (Aslam, nd) and based on observation and experience of researchers over the years, there are facilities that are not available on the LMS as recording facility learning process learners the involvement of learners in existing learning.

The use of Moodle that is now in favor of learning has not been fully able to support the learning system with a curriculum based on competency. To support the CBC still needed a system that could not only emphasizes the mastery of the material, but also on the activity, the characters and the learning process of students who continuously.

This article contains the idea of a model that will be used (applied) to online learning tools that support competency-based curriculum that has the characteristics of student-centered (Student Learning Center). This article will be described and explained:

- Comparing learning system that uses a competency-based curriculum (KBK) with features and modules that exist in Moodle;
- Designing a learning model that can support the CBC using LMS and DMS.

This article is limited to the design model to be applied in Perbanas Institute, especially in Faculty of Information Technology. The model is the learning model that can support the CBC invitation Moodle learning *(Learning Management System/LMS)* and Document Management System (DMS), particularly in terms of the capability of recording the activity of learners in teaching and learning activities.

METHODOLOGY

The method used in this research is the *action research.* According Gurito et al., (2010), *Action research* is a form of applied research (applied research) which aims to find an effective way that produces a deliberate change in an environment that is partially controlled (controlled). The main objective *research action* is entering a situation, make changes, and monitor the results (Guritno & Rahardja, 2011). The data used in this research is the source of primary data and secondary data sources. The primary data source is the administrator of e-learning and document management, secondary data source is in the form of documents available related to e-learning, document management and teaching.

Stages of the research conducted as in Figure 1. In this research stages starting from requirements analysis, design a prototype that will be created, and then build a prototype. Once the prototype is made will be tested which will then be evaluated.

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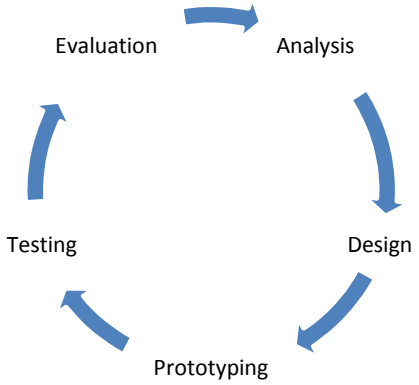

Figure 1: Stages of Research Methodology.

- Analysis
  Analysis was done by viewing and comparing models LMS and DMS that has been there look at the services provided, while also learning rules and standards, which must be observed by the providers of education, competency-based curriculum.
- Design
  At this stage designer for the manufacture of e-learning Instructional Model mapping function in the LMS with learning model CBC.
- Manufacture Prototype
  Make a model or prototype e-learning by using LMS and DMS.
- Testing
  The model will be tested at the Faculty of Information Technology Perbanas.
- Evaluation
  Evaluation/testing results of the test will be analyzed with a questionnaire.

DISCUSSION

E-Learning

Horton, William in his book entitled E-learning by Design define *"E-learning is the use of electronic technologies to create learning experiences"*. Several variations of e-learning (Horton, 2012):

- Standalones courses;
- Learning games and simulations;
- Mobile learning;
- Social Learning;
- Virtual-classroom courses.

Competency-Based Curriculum (CBC)

According Kepmendiknas No. 232/U/2000 curriculum is defined as follows: "Higher education curriculum is a set of plans and arrangements regarding the content and study materials and lessons as well as the delivery and assessment used as guidelines for the organization of teaching and learning in higher education" (Sub Direktorat KPS (Kurikulum dan Program Studi), 2008).

In MANUAL COMPETENCE-BASED CURRICULUM DEVELOPMENT OF HIGHER EDUCATION (An alternative curriculum development) are arranged Sub Directorate of Curriculum and Program, Academic Directorate of the Directorate General of Higher Education states that the curriculum is a program developed and implemented to achieve a goal of education. In the form of program documents and implementation of programs.

Learning in CBC

CBC demand changes during the learning process that this has been done is *Teacher-Centered Content-Oriented* (TCCO) *to Student-Centered Learning* (SCL). Learning Process TCCO causing educator's function as a facilitator or motivator.

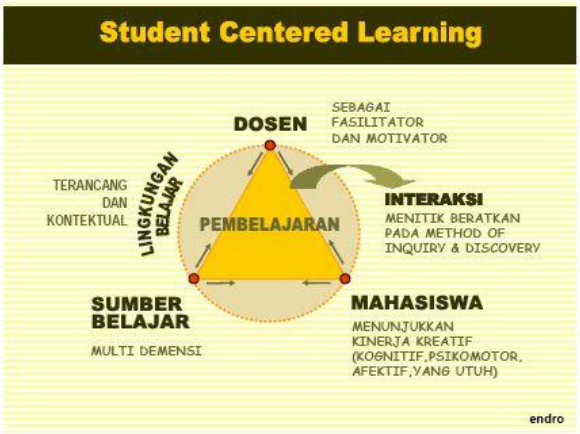

Figure 2: Student Centered Learning Schema (Sub Direktorat KPS (Kurikulum dan Program Studi), 2008.

SCL learning method has the following characteristics: (Sub Directorate of KPS (Curriculum and Program Studies), 2008).

1. Students actively develop the knowledge and skills learned (SCL1);
2. Students are actively involved in managing knowledge (SCL2);
3. Not only emphasizes the mastery of the material but also in developing student character (life-long learning) (SCL3);
4. Utilizing many of the media (multimedia) (SCL4);
5. Functions as a facilitator and lecturer evaluations conducted together with students (SCL5);
6. The process of mutual learning and assessment conducted continuous and integrated (SCL6);
7. The emphasis on knowledge building. Error is considered to be a source of learning (SCL7);
8. According to the development of science by means of an interdisciplinary approach (SCL8);
9. Climate developed a more collaborative, supportive and cooperative (SCL9).
10. Students and professors learn together in developing the knowledge, concepts and skills. Students can learn not only from lectures but could also be used in various ways and activities (SCL10);
11. Emphasis on achieving competence of learners and not the completion of the material. The emphasis on how students can learn to use a variety of teaching

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materials, methods, interdisciplinary emphasis on problem-based learning and skill competency (SCL11).

In the learning process of SCL, lecturers still have a role:

1. Acting as a facilitator and motivator in learning (DosenSCL1);
2. Assessing the competence of the subjects that need to be mastered at the end of the lesson students (DosenSCL2);
3. Designing strategies and learning environments by providing a variety of learning experiences necessary in order to achieve competence students charged in the course of teaching (DosenSCL3);
4. Helping students to access, organize and process information to be used in solving real problems (DosenSCL4);
5. Identify and determine the pattern of assessment of student learning outcomes that are relevant to its competence (DosenSCL5).

The role to be performed by students in learning SCL is: (Sub Directorate of KPS (Curriculum and Program Studies), 2008)

1. Assessing the competence of the subjects that presented lecturer (student of SCL1);
2. Assessing learning strategies that offered by lecturers (student of SCL2);
3. The lesson plan for the course that followed (student of SCL3);
4. Learn actively (by way of listening, reading, writing, discussions, and engage in problem solving and more importantly involved in high-level thinking activities such as analysis, synthesis and evaluation), both individually and collectively (student of SCL4);
5. Optimizing her abilities (student of SCL5).

Learning methods to support the SCL: (1) Small Group Discussion; (2) Role-Play & Simulation; (3) Case Study; (4) Discovery Learning (DL); (5) Self-Directed Learning (SDL); (6) Cooperative Learning (CL); (7) Collaborative Learning (CBL); (8) Contextual Instruction (CI); (9) Project Based Learning (PPA); and (10) Inquiry and Problem Based Learning (PBL) and many other learning model that can be used, as well as any teacher can develop their own learning models.

Learning Management System (LMS)

Learning Management System (LMS) or a *Virtual Learning Environments* (VLE) according Phillipo & Kongrad are:

"A Learning Management System is the "great enable" of many current and future education initiatives, such as personalized learning, learner-centered decision making, staff productivity and curriculum development in support of the Common Core State Standards." (Phillipo & Kongrad, 2012)

Learning organizations require a LMS that is easy to access, easy to use and supports the primary mission of the organization by:

- Generate accurate, reliable and timely information about student performance to realize the process of education and personalized learning;
- Increase the involvement of parents by increasing access to relevant information and updates on the educational experience of students;
- Empower students with the resources needed to assume an active role in, and accept responsibility for their educational experience;
- Provide staff with the opportunity to work together and are interdependent to

improve communication cross curricular, improve productivity, and increase accountability;

- Linking staff development programs and evaluation/supervision of student learning and achievement in a comprehensive, nuanced attitude;
- Connect a standard for learning programs and assessment strategies through virtual alignment tool;
- Identify gaps and misalignment in learning programs, such as the adequacy of instructional resources, assessment items, and/or proficiency of staff, with the test program;
- Allow community members of all ages to participate more fully in the learning process through the use of online tools.

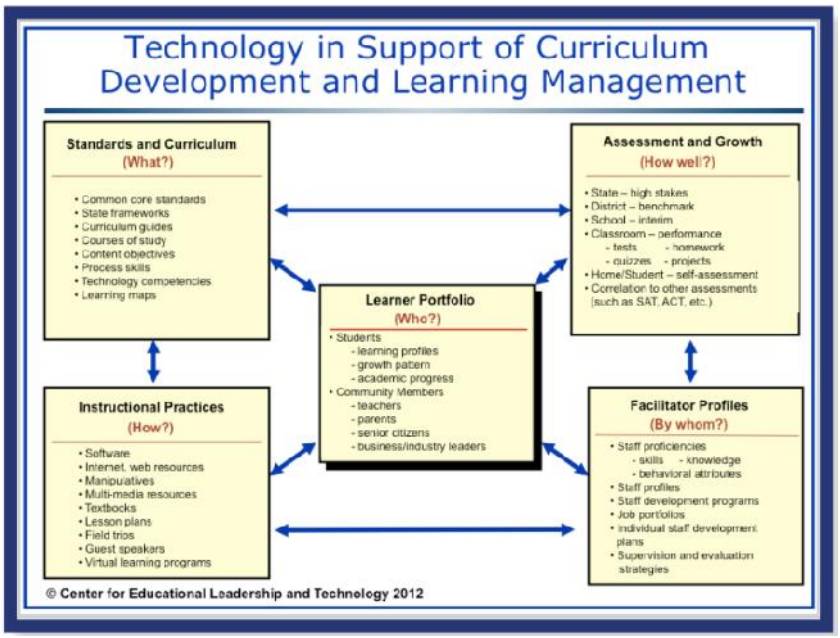

Figure 3: LMS Conceptual Model

A lot of LMS or VLE has been used by various organizations or personal with advantages and disadvantages. Figure 4 shows a comparison of some of them. Based on research Ajlan, 2012, which compares 10 sorts VLE basis of the features and capabilities as well as technical aspects of the system, Moodle VLE is the best.

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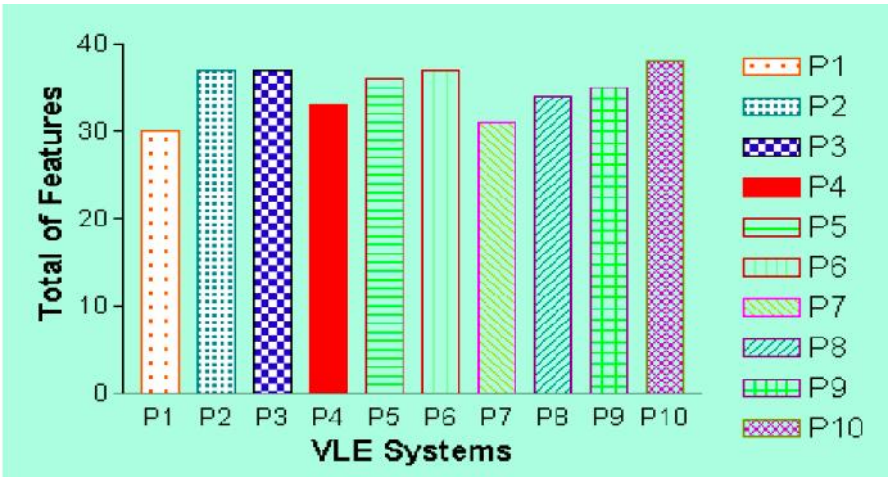

Figure 4: Comparison of VLE

Moodle

Moodle is a *Virtual Learning Environment* (VLE) which is widely used around the world by schools, institutes, universities, companies, freelance teachers and parents "home schooling". Moodle also has great potential to draw on the experiences of e-learning success by providing many excellent tool that can be used to enhance learning conventional classes in the system VLE that has scaled up from one site teacher for more than 50-thousand-student (O'Donnell, Hmelo-Silver, & Erkens, 2013). Moodle, is free applications *(open source software)* licensed under the GNU *(General Public License)* is an *online Learning Management system* that can help teachers create a personal website that can be filled with material that dynamic*(dynamic courses)* which enables learning anytime and anywhere.

Everyone can adapt, develop or modify Moodle either for commercial or non-commercial. MOODLE provide a complete software package (MOODLE + Apache + MySQL + PHP) which can be downloaded at http://download.moodle.org/ The Moodle features is:

1) General Features: Modern, easy to use interface, Personalized Dashboard, Collaborative tools and activities, All-in-one calendar, file management Convenient, Simple and intuitive text editor, Notifications, Track progress,
2) Administrative Features: Customizable site design and layout, Secure authentication and mass enrollment, Multilingual capability, Bulk course creation and easy backup, Manage user roles and permissions, Supports open standards, high interoperability, Simple add-ons and plug-in management, Regular security updates, Detailed reporting and logs, detailed reporting and logs
3) Course Development and Management Features: Direct learning paths, Encourage collaboration, Embed external resources, Multimedia Integration, Group management, workflow Marking, In-line marking, Peer and self assessment, Integrated Badges, Outcomes and rubrics, Security and privacy

User or Moodle users can be divided into multiple roles (roles), as in Table 1. Activities of learning to or facilitated by Moodle are as varied as in Table 2 that support the learning process.

Table 1: Standard *Roles*

Role name	**Role**
site administrator	Can do "anything" at LMS
Manager	More bit of the site administrator
Course Creator	Creating classes (courses)
Teacher	Manage and add the contents of the class
Non-editing teacher	Scoring but can not edit
Student	Can view and participate in classroom
guest	Can be viewed but not can participate in classroom
authenticated user	All users who log on and see the front page

Document Management System (DMS)

Alfresco is a *hybrid cloud enterprise content management platform* that manages and synchronize content in the cloud and on-premises repository. Mobile platform and application integration allows users to collaborate anywhere. Alfresco provides the ability to search in costumized that connect users to files, websites and relevant people. Integrated analytical search by looking for content and interactions and help identify assets. Average build more than 100 million documents and serve thousands of users (Brooks, 24, & EST, 2016).

Table 2: Table learning activity in Moodle

Activity	**Information**
Assignments	Enable teachers to grade and give comments on uploaded files and assignments created on and off line
chat	Allows of participants to have a real-time synchronous discussion
Choice	A teacher Asks a question and specifies a choice of multiple responses
database	Enables of participants to create, maintain and search a bank of record entries
external tool	Allows of participants to interaction with LTI compliant learning resources and activities on other web sites.
feedback	For creating and conducting surveys to collect feedback
Forum	Allows of participants to have asynchronous discussions
glossary	Enables of participants to create and maintain a list of definitions, like a dictionary
Lesson	For delivering content in flexible ways
Quiz	Allows the teacher to design and set quiz tests, the which may be automatically marked and feedback and/or to correct answers shown
SCORM	Enables SCORM packages to be included as course content
survey	For gathering the data from students to help teachers learn about Reviews their class and reflect on their own teaching
wiki	A collection of web pages that anyone can add to or edit
workshop	Enables peer assessment

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Alfresco which has existed since 2005 helps the entire organization to share *(share)*, set (manage) and maintain content for the entire organization with ease. Alfresco is being implemented in more than 180 countries can collaborating become more effectively, improve business processes become more efficient and ensure information governance.

Alfresco is one *powerful* enterprise content platform. Alfresco can fully manage all types of content from simple office documents to scan images, photographs, engineering drawings and video files are huge. *One built-in* Alfresco enables companies to automate document business processes, increase efficiency and accuracy. *One collaboration* of Alfresco enables secure collaboration, within or even outside the firewall

Research of James R. Bennett, James Lane, Ge Wang, gives an overview of the important functions that can be implemented using Alfresco (R. Bennett, Lane, & Ge, 2013):

1. Repositories on Alfresco facilitating
    - Upload, download, search, organize, update, comment, delete, move, or copy a file or folder on computer or mobile device, almost the same as the solutions provided by the product/similar commercial applications like DropBox or iCloud;
    - Can be accessed using several protocols: hypertext transfer protocol (HTTP), Web Distributed Authoring and Versioning (WebDAV), file transfer protocol (FTP), secure shell FTP (SFTP), content management interoperability services (CMIS) and many more, can be accessed with almost all web browser and display the attractive GUI in line with management tools and functionality searching;
    - All data and information sent via HTTP to be safe by adding TLS/SSL certificate for the Alfresco server to encrypt communications between the user as HTTPS (same security used by all retail/banking website);
    - WebDAV extension of the HTTP protocol has the same basic functions with the FTP with collaborative functions such as 'locking' and 'version control';
    - FTP, SFTP and all popular file protocols supported by Alfresco.
2. Index function seeking actively and extract all the text from a file including the compressed file (zip or rar). Indexing allows users to search for content from both internal and commercial search engines such as google or yahoo. A user can search and view content in accordance with the access that, it very useful for organizations that deal with content-sensitive/confidential.
3. Alfresco provides enterprise-class features user management is very increasing value and their role as the configuration of security rules specific user or using standard conditions recommended.
4. 'Knowledge management' tools, it is very important for the user to collaborate, share documents and knowledge.
5. Workflow management (WFM) is already in Alfresco, allowing content to be "progress" with a certain time and a combination of users and tasks, for example, "Review & Approve" workflow.

Alfresco have the open source applications to access content via mobile devices. (Android and iOS).

CBC Learning mapping system with the features of Moodle

Based on the requirements demanded by the learning system with CBC and modules provided by Moodle, such mapping obtained in Table 4, Table 5 and Table 6. Based on the mapping, it can be concluded that Moodle can support learning by competence-based curriculum. However, there are limitations on Moodle so that learning includes:

1. Moodle provides facilities activities that can encourage activity, but teaching students in this faculty is hard to see the liveliness of the students.
2. Workflow students for the task group (task management) of each member of the group can not monitored by Moodle
3. Document management of student work is not managed properly
4. Moodle gives no direct notification (via e-mail) to students or faculty if there is activity both teachers and students.

Table 4: Learning Method SCL and Features Applications Moodle

ACTIVITY **LEARNING SCL**	**Assignments**	**chat**	**Choice**	**database**	**external tool**	**feedback**	**Forum**	**glossary**	**Lesson**	**Quiz**	**SCORM**	**survey**	**wiki**	**workshop**
SCL1	v	v			V		v		v	v			v	v
SCL2		v					v	v						
SCL3		v				v	v	v	v			v	v	v
SCL4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
SCL5	v	v	v	v	v	v	v	v	v	v	v	v	v	v
SCL6	v	v				v				v		v		
SCL7	v	v	v	v	v	v	v	v	v	v	v	v	v	v
SCL8					v								v	v
SCL9		v				v	v							v
SCL10							v				v		v	v
SCL11	v												v	v

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Table 5: Role in Learning SCL lecturers and Features Applications Moodle

ACTIVITY / LEARNING SCL	Assignments	chat	Choice	database	external tool	feedback	Forum	glossary	Lesson	Quiz	SCORM	survey	wiki	workshop
lecturer SCL1		v				v			v			v		
lecturer SCL2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
lecturer SCL3		v				v	v							
lecturer SCL4	v		v							v				

Table 6: Role of Students in Learning SCL and Features Applications Moodle

ACTIVITY / LEARNING SCL	Assignments	chat	Choice	database	external tool	feedback	Forum	glossary	Lesson	Quiz	SCORM	survey	wiki	workshop
students SCL1						v	v		v					
students SCL2									v					
students SCL3	v	v	v	v	v	v	v	v	v	v	v	v	v	v
students SCL4	v	v	v	v	v	v	v	v	v	v	v	v	v	v

E-Learning Model Design

Limitations contained in the Moodle must be overcome by using other applications, which can overcome the existing limitations. Merging these two applications are expected to support learning by competence-based curriculum. After doing the research literature, collecting data and interviews with experts or managers of e-learning using Moodle as LMS, the existing limitations can be overcome with a document management system application, one of which is Alfreso. The model offered is a model DLMS, which consists of two parts:

1. LMS as learning tool includes providing material, evaluation, assessment, feedback, discussion, consultation
2. DMS as a tool that function recording process and teaching activities

DMS on the exterior of the model, then the LMS application placed in. DMS has governance capabilities to its own function as well as other applications that are placed inside it, so with this model implementation process management that is in DMS easier. With this model, the purpose of *"Learning Process Management"* can be obtained on the basis of DMS applications more readily as do multi governance process. Part in the wake DMS, can be integrated in it with other applications in university, e.g. website, academic applications, courses and more.

DLMS developed to be implemented in terms of managerial (governance) as a means of technology used in the learning process focuses on *"Student Center Learning"*.

Governance of operational e-Learning can be done via DMS as control centers, then the learning process can be run as expected with a focus on active learning *(Student Learning Center).* E-Learning Model in terms of managerial can be seen as a figure 5

With this model, learning interaction between learner and teacher is not limited by the space in which it means that the learning process can be done anywhere, anytime by an individual or a group of students. Lecturer plays a role as a facilitator (and monitored) by the students' activities. Students do not continuous interaction. While the faculty has the ability to monitor student activity by receiving the information at any time about whom the students are accessed e-Learning. This monitoring is obtained from the recording and response systems owned DMS applications. These recordings in the form of a track record of student activities that supported the system response in the form of a notification email to the lecturer.

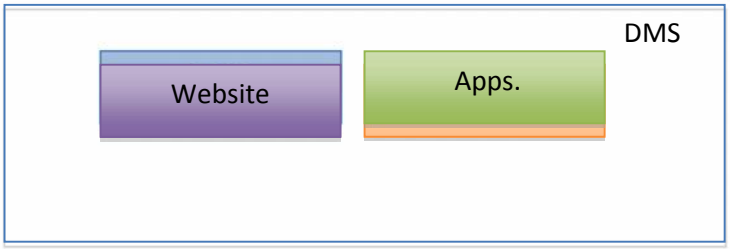

Figure 5: Model of the e-Learning Process Governance

CONCLUSION

Based on the above discussion it can be concluded that the LMS Moodle can not fully support the learning process that uses a competency-based curriculum (CBC), so it needs the additional support of other applications.

DLMS models developed is the result of combining two DMS and LMS applications to meet the needs of the implementation of curriculum-based teaching and learning process CBC. This compliance is obtained from e-Learning assessment where all participants receive notifications about activity that is happening on this model. The ability to do (send) this notification is an important part that is needed especially for the person in charge of the learning that educators in order to exercise control (monitoring) activities of students. By utilizing this model which will see students who are already running their own learning both reading, doing tasks even respond to the task given by educators.

However, further research is needed to evaluate the model, such as, model's acceptance test so that this model can be applied and followed by a test of

REFERENCES

About Moodle. (2015, 30). Retrieved from https://docs.moodle.org/26/en/About_Moodle

Brooks, C., 24, B. N. D. S. W. M., & EST, 2016 09:19 am. (2016, March 24). Best Document Management Software and Systems. Retrieved 29 June 2016, from

ISBN 978-602-73030-1-0

http://www.businessnewsdaily.com/8038-best-document-management-software.html

Guritno, S., & Rahardja, U. (2011). *Theory an application of IT Reasearch //Metodologi penelitian teknologi Infirmasi*. Andi Yogyakarta.

Horton, W. (2012). *E-learning by Design* (Second). Pfiffer.

O'Donnell, A. M., Hmelo-Silver, C. E., & Erkens, G. (2013). *Collaborative Learning, Reasoning, and Technology*. Routledge.

Phillipo, J., & Kongrad, S. (2012). Management System (LMS): The Missing Link and Great Enabler, Massachusetts ASCD Perspectives. Retrieved from http://www.celtcorp.com/resources/1/CELT_LMS_Article.pdf

R. Bennett, J., Lane, J., & Ge, W. (2013). Enterprise Content Management for Academic Research, James Lane, Ge Wang. *International Journal of Engineering and Innovative Technology (IJEIT)*, *3*(6).

Sub Direktorat KPS (Kurikulum dan Program Studi),. (2008). BUKU PANDUAN PENGEMBANGAN KURIKULUM BERBASIS KOMPETENSI PENDIDIKAN TINGGI (Sebuah alternatif penyusunan kurikulum). Direktorat Akademik Direktorat Jenderal Pendidikan Tinggi. Retrieved from http://luk.staff.ugm.ac.id/atur/PanduanKBK-Dikti2008.pdf

DESIGN E-LEARNING TO IMPROVE STUDENT LEARNING INTEREST AIKOM TERNATE

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Abstract

E-learning as a learning system in the process of development covering a wide range of disciplines. Various disciplines directly related to, among others, education technology, computer and visual communication. The development of technology and information creates a breakthrough in the development of instructional media. In the middle of the development of learners in contact with the devices of mobile communications technology and Internet technology has become a new trend that enables distance learning platform known as (e-learning). The combination of telecommunication and internet technology enables the development of e-learning systems.

This paper discusses how the design process E-Learning on AIKOM Ternate to increase student interest in learning by harnessing the technology that exists today so that students can make the process of learning anytime and anywhere they are using technology available today without always having to come face to face with professors or teachers so that they are not left behind in the learning process.

Keywords: E-Learning, Design, Education

INTRODUCTION

The development of technology and information creates a breakthrough in the development of instructional media. In the middle of the development of learners in contact with the devices of mobile communications technology and Internet technology has become a new trend that allows media online learning, or better known as e-learning (e-learning). The combination of telecommunication and internet technology enables the development of m-learning system. Although the current m-learning is still in its early stages of development and the researchers are still exploring every aspect, m-learning is expected to be quite rapid and viable in the short term (Holzinger et al., 2005). This is supported by the following factors:

- Device increasingly, cheap and sophisticated as well as the fact that the user is on a mobile device more than computer users.
- Technological development of wireless/cellular (2G, 2.5G, 3G).
- Demands of consumers.

E-learning, resources (computing resources) to the m-learning environment is very limited. A mobile device that is used as a medium of learning has some limitations, such as the power supply, storage capacity, processor, display and means of input/output. In addition, the mobile device has a hardware and software platform that is diverse, as well as a server platform that is used as learning resource managers. This fact has led m-learning system must be specifically developed and optimized so as to be compatible on a variety of platforms and devices and the limited resources as well as having the optimal interoperability.

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STUDY OF LITERATURE

Research Accomplished

Research conducted by Joel L Moore et al., entitled "E-Learning, Online Learning and Distance Learning Environments: Are they the same?" This study discusses how distance learning by looking at the characteristics of the existing environment, as well as the expectations of distance learning.

Research conducted by May Lick Cheek et al., with the title "Predictors of E-Learning Satisfaction in Teaching and Learning for School Teachers: A Literature Review" discusses the satisfaction factor of e-learning in the learning process pursuit undertaken by school teachers ménage above.

Research conducted by Yourself Mehdipour et al., titled "Mobile Learning for Education: Benefits and Challenges" This study discusses the benefits, challenges and constraints of mobile learning to support teaching and learning process. While the title of the paper the author of "Design of E-Learning to Improve Student Learning Interests AIKOM Ternate"

E-Learning

E-learning is a form of learning model that facilitated and supported the use of technology-information and communication. E-learning is characterized, among others (Clark & Mayer, 2008: 10): 1) have content that is relevant to the learning objectives; 2) using instructional methods, such as the presentation of examples and exercises to improve learning; 3) using the media elements such as words and pictures to convey me-learning materials; 4) possible direct learning centered teaching (synchronous e-learning) or designed for independent learning (asynchronous e-learning); 5) build understanding and skills related to learning objectives either individually or improve the performance of group learning.

Seok (2008: 725) states that “e-learning is a new form of pedagogy for learning in the 21st century. E-Teacher is e-learning instructional designer, facilitator of interaction, and subject matter experts”.

In e-learning, independent of time and place is an important factor that is often emphasized. However, the traditional e-learning remains a minimum requirement PC thus has the consequence that the independence of time and place are not fully met. This independence still can not be met with the use of notebook (portable computers), because of the independence of time and place that actually means one can learn anytime and where he or she needs to access the learning material (Holzinger et al., 2005.

E-learning is part of e-learning (distance learning) (Georgiev et al., 2006).

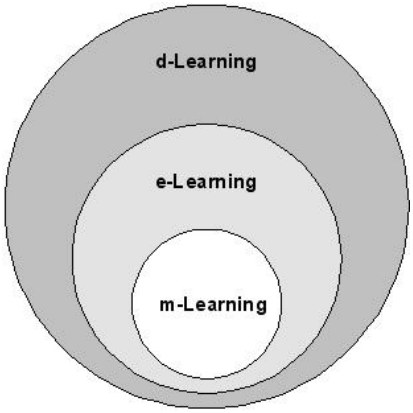

Figure 1: Schematic Of Form M-Learning (Georgiev, et al., 2006)

Various definitions of e-learning presented above shows that e-learning is distance learning can be developed for a variety of learning needs and distance learning. Therefore, in the development process should be strictly in accordance with the criteria in the development of a learning system. The use of e-learning applications for online learning at this point is easy by making use of Learning Management System module is easy to be installed and managed like Moodle as one example of software that can be used in designing the E-Learning.

Learning

Learning is a lasting change in behavior, or the capacity to behave in a certain way, resulting from practice or other forms of experience. (Dale H. Schunk Learning Theories: 5) Criteria for learning:

- Learning involves a change in behavior or in the capacity to behave. People learn when they are said to be able to do things in a different way. While it should be warned that the study conclusions regarding the withdrawal.
- Last long learning over time, mean changes in behavior that excludes temporary triggered by factors such as drugs, alcohol and fatigue. The changes are only temporary because when the cause or the trigger is lost, the behavior will return to its original state.
- Learning takes place through experience; these criteria do not include changes in behavior that is mainly formed due to hereditary factors such as changes in children. However, differences between psycology and learning process.

Verbal learning theory useful denotes three things:

- How organized knowledge
- How the mind works to process information (learning) new.
- How can educators implement ideas about curriculum and learning when presenting new material to learners (Burce Joyce, Marsha Weil: case 319).

The design of E-Learning

The draft is the first step in the engineering development phase of a product or system. The design is a process of applying a variety of techniques and principles that aim to define a piece of equipment, a process or system in detail which allows realization of the physical (Roger S. Perssman, 2004).

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Content of teaching materials available on the E-Learning is the Learning Management Systems (LMS). Content and teaching materials can be in the form of multimedia-based content. LMS is a step to prepare draft terms of e-learning content.

While the actor of the implementation of e-learning can be said is a learning process that needs to be educators, learners and administrators who manage the administration and the teaching and learning process. In the design process, the writer compares the learning system used AIKOM today, where the learning process that occurs in AIKOM is as follows:

Figure 2: Learning Process at AIKOM

While the design of the learning process based on e-learning are as follows:

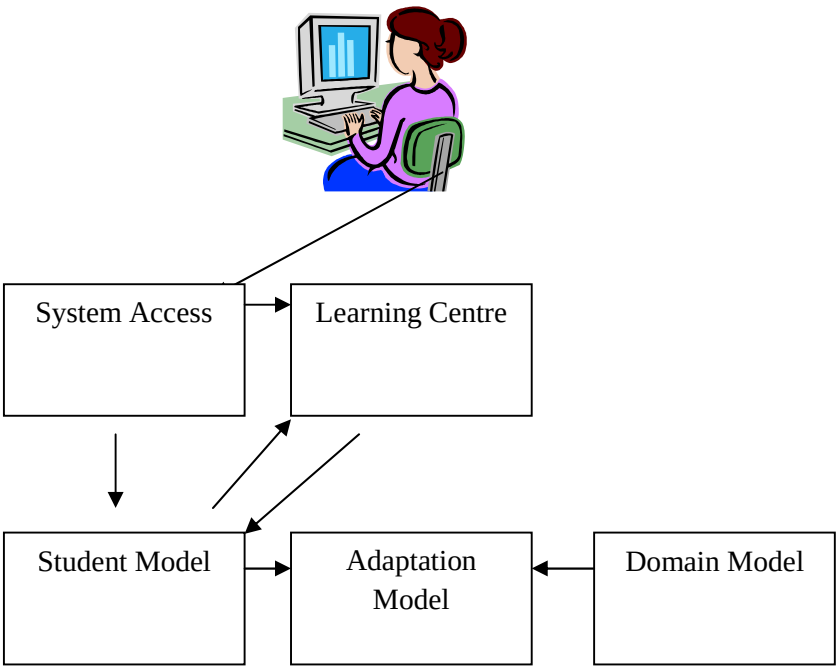

Figure 3: the E-Learning

Explanation of the draft E-Learning:

- Access system serves to handle the registration process of students ranging from login and log off;
- Learning Centre serves as a communication process between learners with the system during the learning process occurs;
- Student serves as a model maker, storing and edit profile of learners;
- Adaptation of the model functions to run and set the rules of the learning process for a learning center;
- The domain model serves to provide learning materials and multimedia files to support teaching and learning activities.

CONCLUSION

E-learning as a learning system in the process of development covering a wide range of disciplines. Various disciplines directly related to, among others, education technology, computer and visual communication. The development of technology and information creates a breakthrough in the development of instructional media. The draft is the first step in the process of development of E-Learning. Learning is a lasting change in behavior, or the capacity to behave in a certain way, resulting from practice or other forms of experience. With the E-Learning can increase learning process, so anyone can follow lecture and to receive and impart knowledge to anyone who does not have to come face to face directly.

REFERENCES

Bates, A. W. & T. Bates. (2005). *Technology, e-learning and distance education: second edition*. New York: Routledge Press.

Bruce Joyce, Marsha Weil, Emily Calhoun. (2015). *Models of Teaching (Ninth Edition)*. Person Education.

Clark, R.C. & Mayer, R.E. (2008). *E-learning and the science of instruction: proven guidelines for consumers and designers of multimedia learning, second edition.* San Francisco: John Wiley & Sons, Inc.

Dale H.Schunk. *Learning Theories An Educational Perspective, Sixth Edition*.

Georgiev, T., E.Georgieva, A.Smrikarov. (2004). *M-Learning – A New Stage of E-Learning, International Conference on Computer Systems and Technologies - CompSysTech' 2004*. Retrieved from http://ecet.ecs.ru.acad.bg/cst04/Docs/sIV/428.pdf

Holzinger, Andreas, Alexander Nischelwitzer, & Matthias Meisenberger. (2005). *Mobile Phones as a Challenge for m-Learning: Experiences with the Mobile Learning Engine (MLE) using Mobile Interactive Learning Objects (MILOs),* Retrieved from http://dmt.fh-joanneum.at/kd3/objects/application_pdf/percom2004%20hawaii_PerIL_ah_nis. pdf

Juntao Yuan, Michael. (2004). *Enterprise J2ME: Developing Mobile Java Applications.* Prentice Hall.

ISBN 978-602-73030-1-0

Joil L Moore, Camile Dickson, Krista Gaylen. (2011). E-Learning, Online Learning and Distance Learning Environments: Are They Same?. *Internet and Higher Education: Vol. 14* (pp. 129-135).

Mei Lei Chock, Suan Luang Wong. (2015). Predictors Of E-Learning Statificasion In Teaching and Learning For School Teachers: A Literature Review. *International Journal Of Instruction.*

Roger S. Pressman. (2004). *Software Engineering: A Practitioner's Approach Fifth Edition*. McGraw-Hill.

Seok, Soonhwa. (2008). The Aspect of E-Learning. *International Journal On E-Learning*. Proquest.

Virvon, Maria dan Eythimios Alepis. (2004). Mobile versus desktop facilities for an e-learning system: users' perspective. *IEEE International Conference on Systems, Man and Cybernetica*.

Yousef Mehdipour, Hamid Zerekhafi. (2013). Mobile Learning For Education: Benefits and Challenges. *International Journal Of Computational Engineering Research: Vol. 03*.

DESIGNING CBT THROUGH A STRUCTURED APPROACH FOR ACCEPTANCE OF NEW STUDENTS IN HIGHER EDUCATION

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Abstract

The development of information technology today has been rapidly changed, where humans have utilize information technology in all the activities. One of the benefits with the technology makes a thing to be effective and efficient. However, the effectiveness has not been felt by some universities, especially private universities. One example at the time of acceptance of new students in most colleges are still use manual systems. The manual system is a constraint in a matter of a few things like procurement, inspection time, and the timing of the announcement. These obstacles should be overcome by utilizing information technology as one of the objectives in the presence of information technology to make it to be effective and efficient. With the development of information technology, it should be a solution to the problem of new admissions to the college. One solution that can be offered is to create a system of computer-based test (CBT). This computer-based test system can make a solution to the problems which have occurred in the reception of new students at the college.

Keywords: Computer Based Test (CBT), Admission of new students, colleges

INTRODUCTION

Background

The development of information technology today has been rapidly increase, where humans have made use of information technology in all the activities. One of the benefits with their information technology has made something to be effective and efficient. However, effective and efficient it has not been felt by some universities, especially for a private university. One example, at the time of acceptance of new students, most colleges still use manual systems. The manual system is a constraint in a matter of a few things like procurement, inspection time, and time announcement. These obstacles should be overcome by utilizing information technology as one of the objectives in the presence of information technology to make it to be effective and efficient.

With the development of information technology, there should be a solution to the problem of new admissions to the college. One solution that can be offered is to create a system of computer-based test (CBT). This computer-based test system can make a solution to the problems that had occurred as a matter of procurement that use a lot of raw materials, inspection

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of a long time, and the timing of the announcement is slow because it must wait for examination results of test exams.

This study designs an application of computer-based tests (CBT) that is expected to help the universities in a new admission. Also this application is designed to be used simultaneously so as to make it easier for universities concerned.

Problem Formulation

Refer to the background that has been described, the formulation of the problem in this study are as follows: (a) The manual system is a constraint upon acceptance of new students in college; (b) Raw materials are less effective and less efficient in the new admissions; (c) Long inspection time; and (d) Announcement that take long time of waiting for the first results of the tests.

Research Objectives

The objectives of this study are as follows: (a) Creating a computer-based test application as the preparation of students in the new admissions; (b) Reducing raw material with the making of computer-based test systems; (c) Accelerate time inspection; and (d) Accelerate time the announcement of the new admissions.

Limitations

Limitations in this study are as follows: (a) Problem type made in the application consists of three types of problems and are static so that will be tested can not be increased; and (b) Problem tested only comes to public examinations such as about Mathematics, English, and Indonesian Languages.

Benefits

The benefits of this research are as follows: (a) This application is expected by means of the admission of new students to be effective and efficient; (b) This application reduces the physical raw materials become paperless; and (c) This application accelerates the timing of new admissions.

THEORETICAL BASIS

Computer Based Test (CBT) Client-Server

Computer Based Test (CBT) is a test method that used by a trainer or educator using a computer [1]. CBT has been used since 1960 to determine the ability of knowledge and problem-solving using computers [2]. At this time, the test using a computer become very popular, because the test by computer has many advantages such as test results that can be directly viewed when the test participants had finished working, reduce operating costs for using a test computer it is no longer material which is paper (paperless). However, despite

the advantages mentioned above, using CBT is flawed, in this case the ability of participants in using a computer.

Structured Software Development Methods

Software development can be defined as the process of creating a new software to replace the old software as a whole or improve existing one. To be faster and more accurate in describing and developing software solutions, in addition to the results easily developed and maintained, the software development requires a specific methodology. Software development methodology is a process of organizing a collection of methods and notation conventions that have been defined to develop the software. Here are a foundation stone that supports software engineering [3].

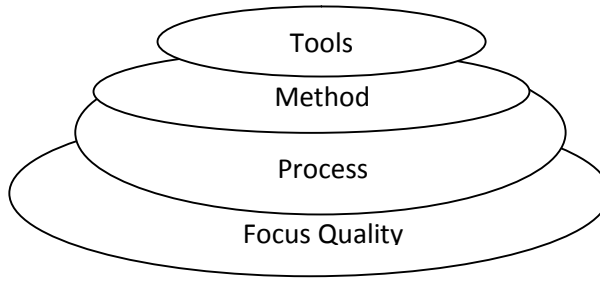

Figure 2.1 The cornerstone of the software engineering

Software development methodology (also called a process model or paradigm of software engineering) is a development strategy that combines processes, methods, and devices (tools). Methods of engineering software, provides techniques for building the software. In connection with the wide range of tasks concerning the needs analysis, program construction, design, testing, and maintenance.

To resolve the problem in the software development, team engineers should incorporate development strategies that encompass coating processes, methods, and tools. Software engineering process model is selected based on the nature of applications and projects, methods and aids to be used, and the control with the explanation that needed.

The model used in this study is the waterfall model or sequential linear. This model is often called the "life cycle of the classic" or "waterfall model". The depiction of this model:

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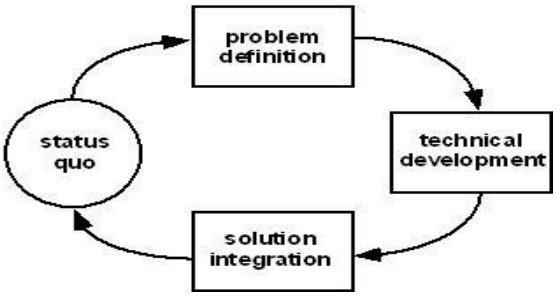

Figure 2.2 Life cycle of problem solving

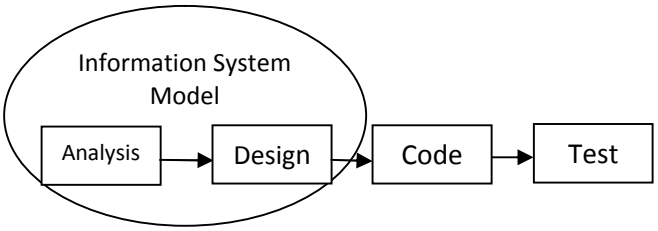

Figure 2.3 Linear Sequential Model

Software development methods with an approach to software development is a systematic and sequential start on the level and progress of the whole system analysis, design, code, test, and maintenance. This model encompasses activities:

a. Engineering and modelling system/information

Because the software is part of a larger system, work began on the establishment of requirements for all system elements and then sort out which ones to software development. It is important, when the software must communicate with the hardware, people and databases

b. Software requirement analysis

The collection requirements with a focus on software, which includes: Domain information, functions needed, performance/performance and interface. The result should be documented and reviewed to customers

c. design

There are four attributes to the program, namely: Data Structures, Architecture software, detailed procedures and interface characteristics. The design process needs to change into a form that is understandable characteristics of the software before starting the writing program. This design should be well documented and become part of the software configuration.

d. code generation

Translating the design into a form that can be understood by the machine, using a programming language

e. examination

Upon completion of testing program code can be done. Testing focuses on the internal logic of the software, external functions and look for all the possible errors and double check whether according to the desired results.

f. Maintenance

The very end of the development cycle and is done after the software is used. Software maintenance apply again every phase of the previous program and does not create new ones.

RESULTS

Analysis of Design Application

The design of this computer-based test application system using client - server. Where the files are stored on a server and then be accessed by the client. This will facilitate in terms of control systems as they are made centrally. Next image access client - server:

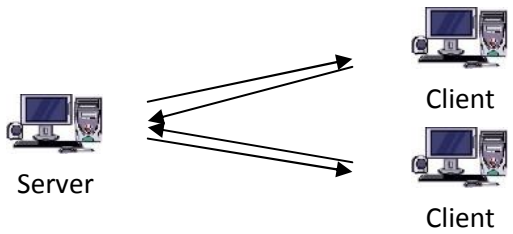

Figure 3.1 System of *client - server*

Applications designed two page views in (login). Login of the test participants and login of the administrator. Participants are only allowed to register and conduct tests while the administrator is allowed to manage the system as it manages about, manage text maintains the value and manage participants. Here is a function of each user:

1. Participants
   a. Registration
   b. Conducting tests
   c. Viewing test results
2. Administrator
   a. Managing text
   b. Managing types of problems
   c. Managing users
   d. Managing the test results

Therefore the user has the function of each so do not mix between the test taker with the administrator.

DFD Design

The initial step in making the DFD is to create a context diagram. Context diagram is a picture of the overall system in which visible outside entities associated with the system. From the context of the diagram then

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breakdown into DFD level 1. DFD Level 1 consists of a process - a process that takes place from the context diagram. DFD level 1 then at the breakdown again become DFD level 2. DFD Level 2 is a more detailed process of the DFD level 1.

a. DFD Level 0 (Contexts Diagram)

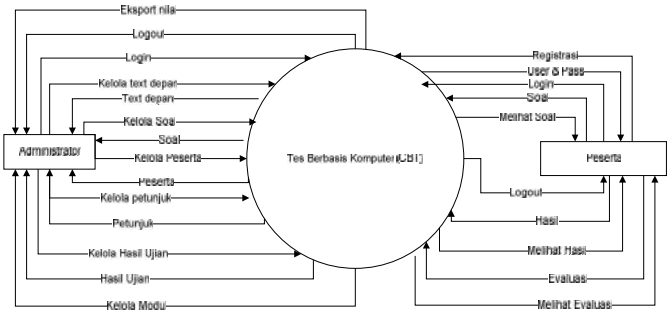

Figure 3.2 Contexts diagram of CBT application

Context diagram of CBT application consists of two external entities, i.e. participants and administrators. Participants are people who take the test questions.

b. DDFD Level 1

DFD level 1 is the breakdown of the context diagram. DFD level 1 is explained in more detail in the context of the previous diagram. There are 12 processes contained in this CBT system including the user login, user logout, registration, work on the problems, results, evaluation, administrator login, logout administrator, user management, problem management, export value and modules. These processes can be seen in Figure 3.3

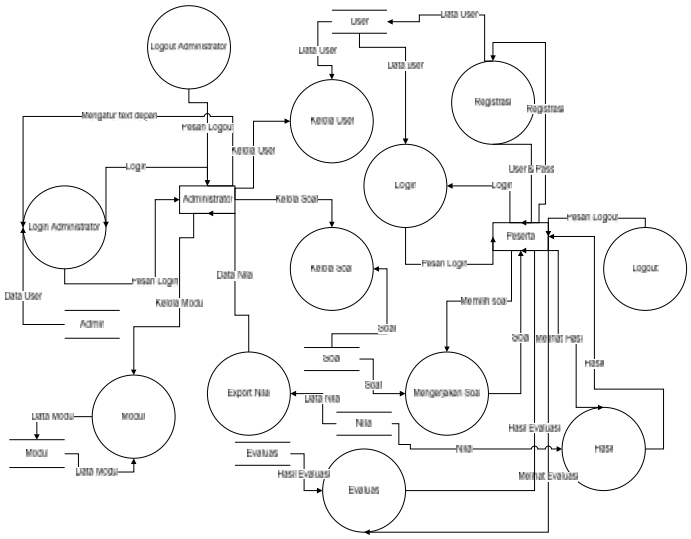

Figure 3.3 DFD Level 1

Explanation of figure 3.3 is based on the data in and out on each process
as follows:

Table 3.1 Process DFD level 1

No	Process Identification	Input Data	Output Data
1	Login user	- Login - Data User	- Pesan Login
2	Logout user	-	- Pesan Logout
3	Registrasi	- Registrasi	- Data Registrasi - User & Password
4	Mengerjakan soal	- Memilih soal - Soal	- Soal
5	Hasil	- Melihat hasil - Nilai	- Hasil
6	Evaluasi	- Melihat evaluasi - Hasil evaluasi	- Hasil evaluasi
7	Login administrator	- Login - Data User	- Pesan Login
8	Logout administrator	-	- Pesan Logout
9	Kelola user	- Kelola User	- Data User
10	Kelola soal	- Kelola Soal	- Data Soal
11	Modul	- Kelola Modul - Data Modul	- Data Modul
12	Eksport nilai	- Data nilai	- Data nilai

c. DFD Level 2

DFD level 2 is a more detailed process of the DFD level 1. There are two processes that can be broken down into two levels, namely user management and problems management.

- User Management

  User management can be broken down into level 2 as the user management process are more detailed which is view, add, alter or edit, and delete. DFD level 2 can be seen in Figure 3.4.

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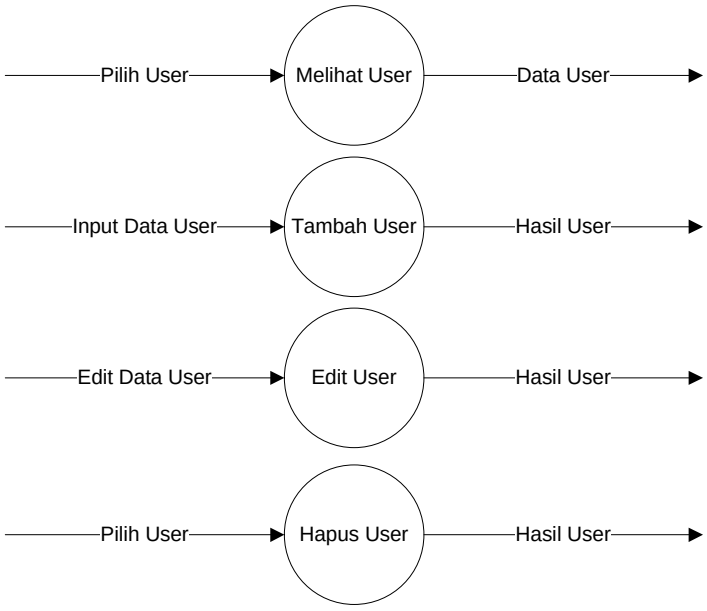

Figure 3.4 DFD Level 2, user management

The following are data flow that occur in the DFD level 2 processes to manage user.

Table 3.2 DFD level 2 user management process

No	Nama Proses	Data Masuk	Data Keluar
1	Melihat	- Pilih user	- Data user
2	Tambah user	- Input data user	- Hasil user
3	Edit user	- Edit data user	- Hasil user
4	Hapus user	- Pilih user	- Hasil user

- Problems Management

Problems management can be broken down into level 2 due to the process of problems management are more detailed which is process of view, add, alter or edit, delete, and search. DFD level 2 can be seen in Figure 3.5.

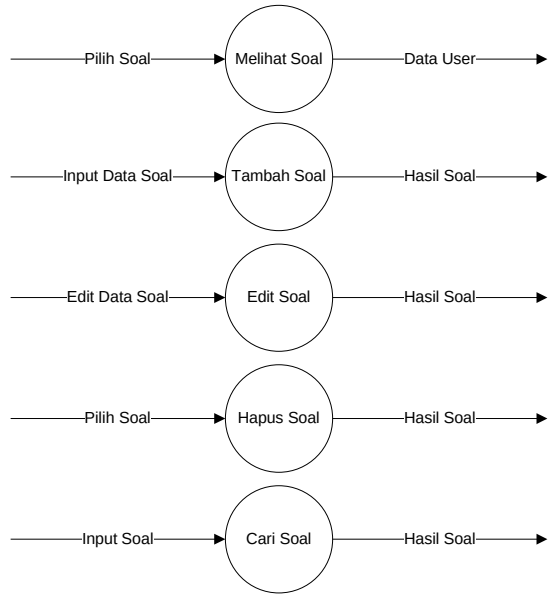

Figure 3.5 DFD Level 2 Problems Management

The following is the data flow that occurs in the DFD level 2, the process of the user management.

Table 3.3 DFD level 2 User Management Process

No	Nama Proses	Data Masuk	Data Keluar
1	Melihat	- Pilih soal	- Data soal
2	Tambah user	- Input data soal	- Hasil soal
3	Edit user	- Edit data soal	- Hasil soal
4	Hapus user	- Pilih soal	- Hasil soal
5	Cari	- Input soal	- Hasil soal

d. Data Dictionary

The data dictionary is a catalog of facts about the data and information needs of an information system [4]. Data dictionary used to reduce data redundancy. Here dictionary data at CBT application is made.

Table 3.4 Data Dictionary for CBT Application

No	Nama	Digunakan pada	Deskripsi
1	Login User	Proses login user	Login = no_reg + password no_reg = *string* password = *string*
2	Registrasi/Pendaftaran	Proses Registrasi	User = no_reg + password + nama + jenis kelamin + sekolah asal + telp + email no reg = *string* password = *string* jenis kelamin = *string* sekolah asal = *string* telp = *string*
3	Soal	Mengerjakan soal	Soal = no_soal + soal + a + b + c + d + e

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No	Nama	Digunakan pada	Deskripsi
			no_soal = *integer* soal = *string* a = *string* b = *string* c = *string* d = *string* e = *string*
4	Nilai	Nilai (nilai tes)	Nilai = id_nilai + id_user + benar + salah + kosong + score + tanggal + keterangan + jenis id_nilai = *integer* id_user = *integer* benar= *integer* salah = *integer* kosong = *integer* score = *integer* tanggal = *date* keterangan = *string* jenis = *integer*
5	Evaluasi	Hasil Evaluasi	Jawaban_user = id_soal + id_user + jawaban id_soal = *integer* id_user = *integer* jawaban = *string*
6	Login Administrator	Proses login Administrator	Login = username + password username = *string* password = *string*
7	Mengelola User	Proses Kelola User (input+update+delete)	User = id_user + user_name + password + nama + jenis kelamin + sekolah asal + telp + email id_user = *integer* username = *string* password = *string* jenis kelamin = *string* sekolah asal = *string* telp = *string*
8	Mengelola Soal	Proses Kelola Soal (input+update+delete)	Soal = id_soal + no_soal + soal + a + b + c + d + e + knc_jawaban + gambar + tanggal + aktif = [y|t] + jenis id_soal = *integer* no soal = *integer* soal = *string* a = *string* b = *string* c = *string* d = *string* e = *string* knc_jawaban = *string* gambar = *string* tanggal = *date*

No	Nama	Digunakan pada	Deskripsi
			aktif = *boolean* jenis = *string*
9	Nilai	Proses Eksport hasil tes	Nilai = id_nilai + id_user + benar + salah + kosong + score + tanggal + keterangan + jenis id_nilai = *integer* id_user = *integer* benar= *integer* salah = *integer* kosong = *integer* score = *integer* tanggal = *date* keterangan = *string* jenis = *integer*
10	Modul	Proses mengelola modul (teks halaman depan)	Modul = id_modul + isi_modul + gambar id_modul = *integer* isi_modul = *string* gambar = *string*

Data Base Design

The design of the database in the CBT system includes several entities including user entity, problems, type, and the admin module. Users are entities associated with the users about the entity and the entity types. There are two types of relationships that connect the user, the problems and the types. The first relation is a relation value. The relation of this value will set up a table where the primary key value in any entity that is connected will be the attributes of the relation value. Then the second relationship is a relationship user answers, this relationship connects between the entity and a matter of course. The CBT system database overview is depicted in Figure 3.6.

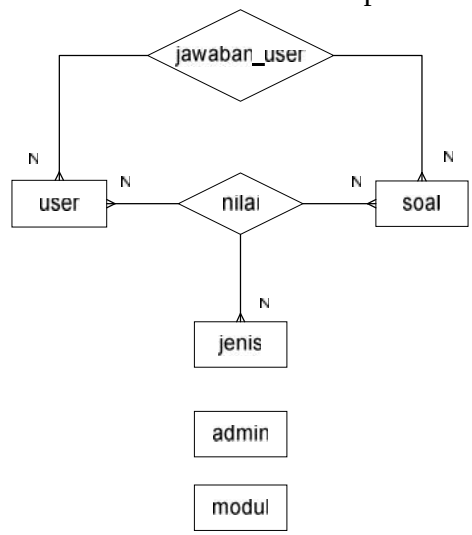

Figure 3.6 ERD CBT Application

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Database description

The description of the database design of the figure 3.6 as follow:

Table 3.5 Table of User

Table user	
id_user	Integer (11) auto inc
no_reg	varchar (40)
password	Text
nama	Text
jenis_kelamin	varchar (2)
asal_sekolah	Text
telp	varchar (13)
email	Text

Table 3.5 is a user table. This table is a table that stores data CBT test participants. Attributes of this table is id_user as id, no_reg as the registration number of participants.

Table 3.6 Table of problems

Table Soal	
id_soal	Integer (5) auto inc
no_soal	integer (200)
soal	text
a	text
b	text
c	text
d	text
e	text
Knc_jawaban	Varchar(2)
gambar	Varchar(100)
tanggal	date
Aktif	Enum(Y/N)
jenis	Varchar(2)

Table 3.6 is a table that stores data about the problems and answers. Besides this table stores the image data, date of the matter, a matter of status and type of matter.

Table 3.7 the problem's type

Table Jenis	
id_jenis	Integer (11) auto inc
nama_jenis	varchar (20)

Table 3.7 is a table of questions that stores various kinds of problems. Examples of math, English, and so on.

Table 3.8 The table of score

Table Nilai	
id_nilai	Integer (7) auto inc
id_user	Integer (5)
benar	Varchar(20)
salah	Varchar(20)
score	Varchar(20)
kosong	Varchar(20)
tanggal	varchar (13)

keterangan	date
jenis	Integer(2)

Table 3.8 is a table that stores data values. The stored data is the number of true, false, score, empty, storage date, description and type of matter that is done.

Table 3.9 the table of jawaban_user

Table jawaban_user	
id_soal	Integer (100)
id_user	Integer (100)
jawaban	Varchar (30)

Table 3.9 is a table of the user answers, any answers from the user will be recorded on this table so that the user can later compare the answers that have been done with the correct answer.

Table 3.10 Table Admin

Table Admin	
id_admin	Integer (3) auto inc
username	varchar (30)
password	varchar (30)

Table 3.10 an admin user table. This table stores the data administrators who will control the system.

Table 3.11 Modul Table

Table Modul	
id_modul	Integer (5) auto inc
Isi_modul	text
gambar	varchar (100)

Table 3.11 is a table of the module that serves as modules announcement or guidelines that will be shown to the participants.

System Preview

The system preview of the CBT system to distinguish between user and admin. The display of the user consists of four views, while the look of the admin consists of 6 display. Here is a view of the CBT system is:

User Preview

a. User's Front Page

The front page of the first display when the user is accessed by a user who will perform the test. These pages are a guide, registration, and login for the users that already registered. The front page can be seen in Figure 3.7.

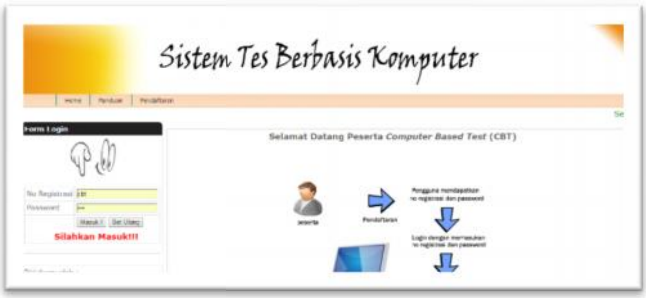

Figure 4.7 User's Front Page

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b. Registration Page

Registration page serves for the registration of the user who will perform the test. Data users who will perform the test will be recorded after successfully registered. Then, the user can directly log in the front page. The registration page is depicted in Figure 3.8.

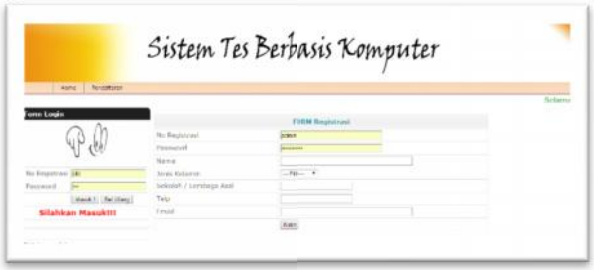

Figure 3.8 Registration Page

c. Questions's Page

The content on this page will load based on the type of problems. If the user selects a certain types of problems, the questions that appear to be followed by type. The problem's page is depicted in Figure 3.9.

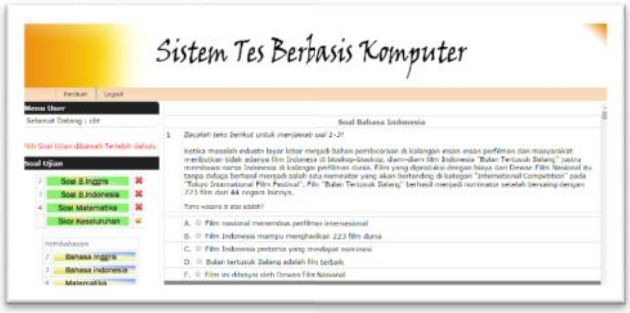

Figure 3.9 Questions page preview

d. Discussion

Discussion page consists of two displays: when the user has not finished work on the problems and to see if the user has finished work on the problems. User views the unfinished work on the problems can be seen in Figure 3.10 while the user views the finished work is depicted in Figure 3.11.

Figure 3.10 The page for unfinished tasks

Figure 3.11 Solution preview when the users completed the tasks

Admin Preview

a. Admin Front Page

The front page of the admin is a front view of where the admin will log in to control the system. The front page can be seen in Figure 3.12.

Figure 3.12 Admin Page

b. Module Management

The next display is to manage modules. This display will appear after login admin successful. The module management can be seen in Figure 3.13.

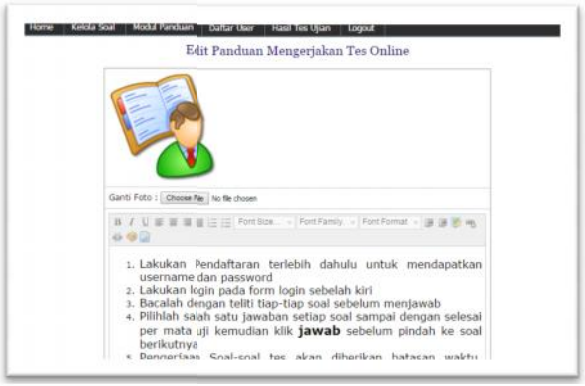

Figure *3.13* Module Management Preview

c. Questions Management

The next page is the questions management as an admin control of the questions/problems. The question management preview is depicted in Figure 3.14.

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Figure 3.14 Preview of Questions' Management

d. User Management

The next display is where the admin of user management manage the user who conducts the tests. The preview of the user management is depicted in Figure 3.15.

Figure 3.15 Preview page of user management

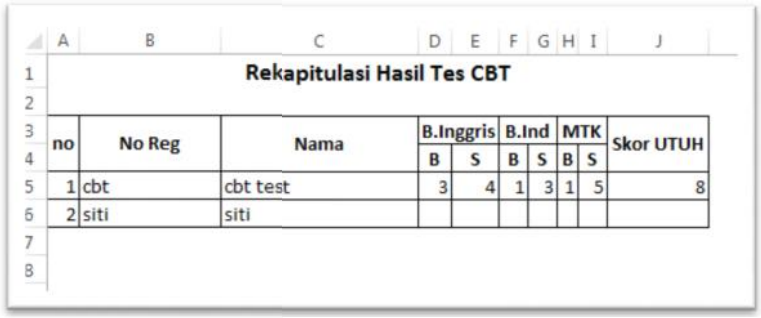
e. Score's Page

Next, the score's preview. This view is the score of the user who has done the test. Page score preview can be seen in Figure 3.16.

Figure 3.16 Page Score Preview

f. Export

Last view is the result of export of the score's page presented into excel. Excel view can be seen in Figure 3.17.



	A	B	C	D	E	F	G	H	I	J
1	Rekapitulasi Hasil Tes CBT									
2										
3	no	No Reg	Nama	B.Inggris		B.Ind		MTK		Skor UTUH
4				B	S	B	S	B	S	
5	1	cbt	cbt test	3	4	1	3	1	5	8
6	2	siti	siti							
7										
8										

Figure 3.17 The score's view on the Ms. Excel

CONCLUSION AND FUTURE WORKS

Conclusion

The conclusion that can be drawn from CBT applications that have been made are:

a. CBT application is expected to assist the college in terms of new admissions.
b. CBT application reduces physical raw materials become paperless.
c. CBT application accelerates the process of acceptance, especially in terms of checks and announcements.

Future Works

For future works, researchers suggest the reader is as follows:

a. Must be tested against CBT system that has been created so that these applications can be measured usefulness.
b. Applications can not make the issue of the test so that the need for the development of applications in terms of issue of the test. Edition of this test is useful if the user wants to do a test with different editions.
c. The absence of the score printing facilities for each participant.

REFERENCES

1) Jimoh, R. G. (2012). Students' Perception of Computer Based Test (CBT) for Examining Undergraduate Chemistry Courses
2) Peter, C. Bill, I., & David, S. (2004). Using computers for Assessment in medicine. *British Medical Journal*, 329(7466) 606-609
3) Pressman, Roger S. 2002. "Rekayasa Perangkat Lunak (Pendekatan Praktis)." Yogyakarta: Andi.
4) Arhami, Muhammad. 2010."Data Flow Diagram dan Kamus Data". Rekayasa Perangkat Lunak
5) Limbong, Toni. "Data Flow Diagram". STIMIK BUDI DARMA MEDAN.
6) Neti & Covrianty, Evri & Anggraeni, Reni. "Perancangan Aplikasi Rental Mobil pada CV Karya Bersama Palembang".
7) Lestari, Sri. 2011. "Perancangan Sistem Perpustakaan Online di PT PLN P3B Region Jawa Barat". Sistem Informasi Widyatama Bandung.
8) Akbar, Ilham. "Perancangan Aplikasi SMS Gateway pelaporan nilai siswa". UNDIP tembalang.

ISBN 978-602-73030-1-0

9) Olufemi, Ogunmakin abel & Oluwatayo, Osakuade. 2014. ”Computer Anxiety and Computer Knowledge as Determinants of Candidates’ Performance in Computer-based Test in Nigeria”. Adekunle Ajasin University.
10) Barker, Richard. 1990. CASE Method: Entity Relationship Modelling. Addison-Wesley professional.
11) Shalahuddin, M and Rosa AS. 2014. Rekayasa Perangkat Lunak. Informatika Bandung.
12) Sommerville. Ian. 2004. Software Enggineering: 7th Edition. McGraw-Hill
13) Shalahuddin, M and Rosa AS. 2008. Analisa dan Desain Sistem Informasi. Politeknik Telkom.
14) Langer, arthhur M. 2008. Analysis dan Design of Information Systems 3rd edition. Springer.

DESIGNING AND IMPLEMENTATION OF MOODLE BASED E-LEARNING IN THE FIELD OF RENEWABLE ENERGY

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Abstract

This article aims at giving an overview of the design process and implementation E-Learning at training centre. E-learning design and implementation at Educational and Training Centre for Electricity, New and Renewable Energy and Energy Conservation had been chose as a study case for this article. This article is concluded with the call for educational technologists to use e-learning as a support for andragogy learning and the research could be extended to mobile and ubiquitous learning.

Keywords: E-Learning, Learning Management System, Unified Modeling Language, Moodle, Object Oriented Programming

INTRODUCTION

The implementation of e-learning as a supporting learning systems approach based on the Unified Modeling Language (UML) on Education and Training Center is a way to improve the quality of learning process so as to create a center of education and training with good-quality and produce qualified human resources and able to win business competition.

This article will discuss design process and implementation web based e-learning system. Conceptual design of the system will focused on how to design the system, developed and implemented to support andragogy instruction outside of the class room and fulfill instructional structure.

Based on the explanation above, this article would elaborate the process of the web-based e-learning plan and implementation. The plan concept system focuses on the plan, design and the making of the system and on how to implement the system to support the andragogic aspect of outside-class learning and to meet the learning structure. The web-based e-learning in this article would be designed with either HTML, PHP language programs or Mysql database. This research used the descriptive analysis with the waterfall model as the instrument research. This research is expected to generate the e-learning system in the computer-based learning process with the ICT as the curricullum tool. The aspect of effectiveness is the priority in order that the participants of training and education (*Diklat*) actively participate in the learning process, and as the consequence, the participants will be skillful. In addition to the the learning time effectiveness, the system will also provide the exciting learning condition since the materials in the form of e-books, videos, chattings and video calls could be downloaded.

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E-learning system fully utilizes the information technology/computer in storing and processing the learning content database, providing various types of media, and distributing the learning through either LAN or WAN.

LITERATURE REVIEW

E-learning concept is in line with the roadmap of US National Science Foundation published in 2010 (Spector, 2013) (Woolf, 2010). There are seven recommended challenges in education technology, all of which are (1) User Modelling, (2) Mobile Tools, (3) Networking tools, (4) Serious Games, (5) Intelligent environment, (6) Educational Data Mining, and (7) Rich Interfaces.

E-learning is a sort of learning-teaching system which might provide materials to participants of training and education through internet, intranet or other computer-based media (Wahono, 2009) (Cahyani,2014).

E-learning also defines as the process of instruction using electronic equipment (computer and telecommunication media) to generate, to assist, to convey, to assess and to facilitate the learning-teaching process with students as the centre of the learning. Besides, the advantage of this sytem is able to run interactively whenever and wherever.

Based on the technology system, e-learning is divided into Computer-based Training (CBT), Learning management System (LMS) and the web-based e-learning application. Unified Modelling Language (UML) is the language program derived from graphs or images of the object-based software development (Object Oriented programming) in order to visualize, to specify, to build up, and to document (Wahono, 2003).

2. A. Learning Management System

The Learning Management System (LMS) is the specified-designed software tool to facilitate the management of trainings; they are the administration of training implementation, the learning process, the resource training management, the competency development, reporting and evaluation. In addition to manage the whole learning system automatically and centralizedly, LMS also manages the system in realtime and online.

2. B. Moodle

MOODLE (Modular Object-Oriented Dynamic Learning Environment) is the software package for the internet-site-based learning activity. MOODLE is one of the applications taken from the learning-teaching concept and mechanism utilizing information technology known as the e-learning. Moodle designed for the learning management system is to assist teachers/lecturers who want to provide the online teaching method. This software application has been used widely at education institutions such as universities, schools, companies, including independent teachers.

2. B.1 Moodle Feature

- Assignments; this type of activity allows instructors to assign students to upload digital content, such as essays, project assignments, reports and so on. After recieving the assignments, instructors can give score.

- Chats; chats allow students to do the online discussion.
- Choices**;** this is a simple activity in which instructors provide questions and answers. This activity can function as a way of making a vote to stimulate students' thought on a topic. For example, creating a condition where students in a class can vote for a course.
- Database Activity; this activity provides instructors or students a chance to make, watch and to find out a piece of information of database on a topic. Data which can be input are images, files URL, numbers and texts.
- Forums; in this feature, students and teachers are in realtime interaction. Unlike chats, forums are conducted asyncronically, meaning that members in this forum will recieve copies of posts in their e-mails..
- Glossary; in the glossary feature, participants can make group of words with their definitions, like that of in a dictionary. The data input in the glossary are in any form of format and automatically it can be linked to other materials.
- Lesson; with this feature, instructors are expected to make an interesting and flexible content. Lesson feature is made up of some pages and questions with some answers are listed at the end of the page. Participants selecting answers will determine the page they will use.
- Quizzes; for quizzes, instructors are able to design types of questions, such as multiple choice type, true or false type, and short answer type. The questions are stored in banks of questions based on their category and they are reusable.
- SCORM/AICC Packages; this feature lets instructors make a package, consisting of web page, graphs, Javascript program, Flash presentation program, video, sound and other any content which are able to be opened at a web browser. The benefit of this package is that it is integrated with questions and instructors can give scores and put them in the students' reporting books.
- Surveys; surveys as well as questionaires are feedback to give positive criticism to either teachers or courses. In this way, the performance of teachers and courses can be improved.
- Wikis; in this activity, without possessing the html knowledge, instructors and students writes web documents together directly from web browser. The outcome of this activity can be grouped as class, group or individual activity.

2.B.2 Resources on Moodle

- Text page; with this text type, instructors are able to write texts. This resource provides some types of formats to make the web page interesting.
- HTML page; instructors can make a full web page and Javascript code can be added if necessary.
- Link to Files or web pages; this resource helps instructors to create a link connected to a web page or other files in the internet or connected to a web page or other files which have been uploaded in local computers.
- Directory; participants can watch whole directory (and subdirectory) from directory of courses.
- IMS Content Packages; by using various content-authoring softwares, IMS

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content packages are made to create file zip. Moodle automatically extracts the packages in order that the package content appears. This feature usually consists of some pages of presentation slide shows and each page has its own navigation.

2.B.3 Types of User on Moodle

- Administrator; It manages the the whole LMS site.
- Course creator; he/she is responsible for the course making, teaching or assigning someone to teach.
- Teacher or instructor; he/she has responsibility to teach a course, to edit a course material, and to manage the class.
- Student; students are those who join the course and they are obliged to register themselves for the course.
- Guest; guests are users and they have an access to the course materials with the format of read only. They can sit for the course with limited term and a user who has yet to register is called a guest.

  Guest is classified into two types:

  a. Guest needing an enrollment key; this type of guest can ask much information on the course before he makes up his mind which course he needs.
  b. Guest who does not need an enrollment key.

- Authenticated user; in the default term, authenticated users are those who have logged in eventhough he is an instructor for his own course. On another course, this instructor is still a guest.

2.B.4 Interactive e-Course

A content is the most significant component in the e-learning system. For this reason, the design needs to be able to develop the e-learning content in some formats, such as CBT/WBT, e-Tutorial, e-Coursware, e-Reference, web-based marketing presentation, software simulation, and other learning objects. The entire types of content are developed with standard learning design model, reliable authoring tool, strict quality control system, and standard fulfillment of e-learning industry (SCORM). The designed Interactive E-Course feature should:

1. Meet the standard SCORM in order that it can be integrated nd be read with LMS/LCMS or other e-Learning application.
2. be able to function on a stand-alone computer, intranet (LAN), and internet (WAN) without being in need of publish process or of any conversion.
3. Be user friendly; it means that the interactive e-course applies an easy interface so that it is easy to learn in the form of technic or of instruction.

2.B.5 SCORM

SCORM (Shareble Content Object Reference Model) is the standandardized e-learning content distribution issued by ADL (Advanced Distributed Learning). This allows the learning object exchange between LMS features, making the learning content reusable by only renewing the content without having to re-make it from the beginning.

SCORM is to similarize the development of web-based e-learning called Learning Management System (LMS). SCORM uses the object-oriented approach and applies that each learning object or content object can be combined to form a greater system.

3. Structural Analysis on Electronic Learning

The electronic learning system at the Education and Training Center is developed from infrastructure level up to the management level of Board of education and training of the Indonesian Ministry of Energy and Human Resources (ESDM). Every level, having unique characteristic and component, is built up by integrating some proven applications and by being supported with applications made up specifically for the electronic learning system at the Education and Training Center. This electronic system consists of:

- Level of infrastructure is to provide basic infrastructure facilities such as power sources and their networks, computer networks (LAN/WAN), rooms and other supporting utilities. This is the basic level of e-learning system at KEBTKE education and training centre. Survey, planning and implementation of the infrastructure level are to determine the quality of the system which is to be installed.
- Level of the learning material is the collection of the learning materials which are provided in some deliveries. The material delivery can be the standaridized SCORM format interactive learning content, e-books, or be in recording of virtual previous class activity. The material learning makes use of as many as the first level of infrastructure
- The management level of KEBTKE education and training centre consists of some sub-systems. This level serves to provide the learning materials and the ability to be integrated with the upper level (the Management Level of Education and Training Board).

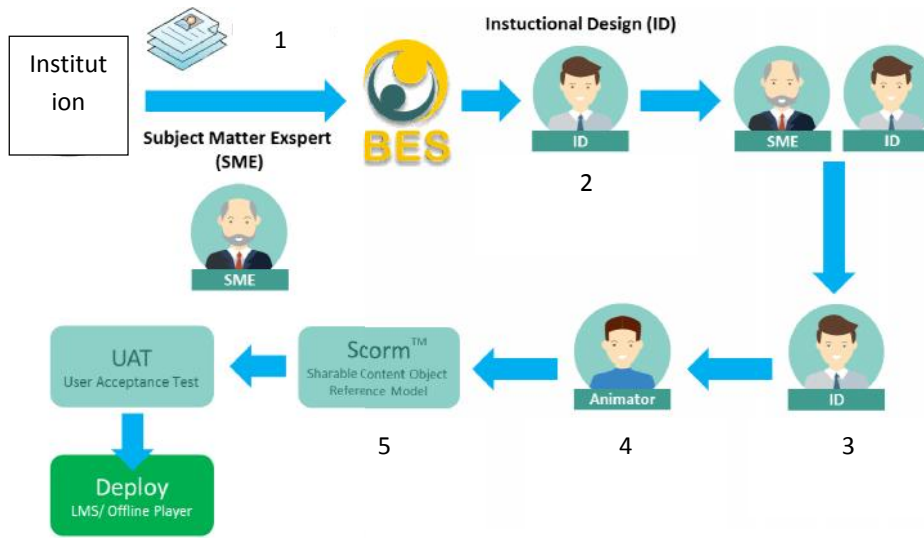

Figure 1: Content Development Process

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Note**:**

1. Material handover.
2. Material delivery concept; material outline/structure; character refference; navigation design refference
3. Storyboard (STB) making; STB controling by using SME
4. Animation making based on STB; naration integration; animation controlling by using ID and SME.
5. Final result of animation in the scorm offline player format.

- The management level of education and training board functions to observe and to evaluate (MONEV) programs held by the education and training centre or held by the lower level units. Consequently, the programs could be improved for better unit performances.
- As seen in figure 2, experts or known as Subject Matter Expert, are invited to involve in the process of the content development. This Subject Matter Expert is someone with a comprehensive and proper understanding on the education and training materials so that the expected goals are reachable.

CONCLUSION AND SUGGESTION

4.1. Conclusion

This research has designed and conducted the web-based e-learning by making use of Moodle. The system facilitates the participants of education and training program and it is considered efficient. Since it is boundless geographically, participants are able to learn whenever and whereever they are, such as at home, at cafes, at bedrooms, at offices, and on cars. Even, they do not have to attend the class.

4.2. Suggestion

For future research, the researcher needs to develop this research in two fields. Firstly, the development of this research will be conducted on the mobile-based system, being known as cloud computing or ubiquitous learning. Secondly, since the absence of the menus and forms on the existing e-learning system, the research needs to be developed on the addition of these menus and forms.

REFERENCES

Cahyani, A. D., & Safitri, R. I. (2014). Desain dan Implementasi Aplikasi E-Learning Adaptif berdasarkan Gaya belajar Siswa. Seminar Nasional Manajemen Teknologi XXI (pp. 1 - 5). Surabaya: Program Studi MMT-ITS.

Spector, J. (2013). Emerging Educational Technologies and Research Directions. Educational Technology & Society, 21-30.

Wahono, Romi Satria.(2009). “Meluruskan salah kaprah tentang e-learning”. [Online]. Available: http://romisatriawahono.net/.

Wahono, Romi Satria. (2003). *Pengantar Unified Modelling Language (UML)*. [Online]. Available: http://www.ilmu-komputer.com.

Woolf, B. P. (2010). A Roadmap for Education Technology. Global Resources for Online Education.

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ELECTRONIC & MOBILE LEARNING DEVELOPMENT

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DESIGN INSTRUCTIONAL MOBILE LEARNING DEVELOPMENT

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Abstract

Rapid technological development can be done allows the learning process using technology now. Technology will be a solution in improving the quality of education. Learning process that has been done conventionally, have changed with the use of technology in teaching and learning, isthe e-learning. That change continues to increase along with technological developments, brought about changes in the system, from e-learning into mobile learning, which can be taken anywhere. Mobile learning being included in the curriculum in the development of instructional, how to design instructional by utilizing technology with mobile learning. But the technology through mobile learning can't answer sometimes improving the quality of education, especially in Indonesia, because Indonesia's infrastructure is not sufficient to perform the learning process entirely. Therefore, the use of technology to develop mobile learning in Indonesia, to be with conceptualizing and designing instructional according to the context in Indonesia, in accordance with the principles and theories of learning.

Keywords: Development of instructional design, Mobile learning

INTRODUCTION

Technological advances, be used to improve the quality of education. Instructional model of e-learning to be one option. Through e-learning, instructional done already more simple by using applications on the computer. Now the educational institutions are not only limited to the use of computers only. E-learning is evolving into a mobile learning using mobile webMobile devices are the most frequently used devices worldwide, and today, the mobile ecosystem is undergoing an exciting revolution (Elad, E., Scott, J., & Thomas, J., 2009: xxviii). Mobile learning through someone can share information and be able to access learning materials at any time and any where.Mobile learning through someone can share information and be able to access the course materials at anytime and anywhere.

Mobile learning refers to the use of mobile devices; such as a cell phone, android, laptops, net books, and others, which can be taken anywhere. Mobile learning is developed according to the needs and wishes of the user. Device developed with features that are compatible, so you can access course materials, referrals and applications relating to learning anytime and anywhere. Then how to develop mobile learning which widened the present trend. In this article, will discuss the development of mobile learning instructional design.

LITERATURE REVIEW

Concept of Development of Mobile Learning

Mobile learning is composed of two kinds, software and web-based applications. Mobile learning is the development of e-learning technology into mobile learning. Being one of the operating system part of the course curriculum in the name

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of information technology. “Mobile learning made it possible to access educational material spatially and temporally unbounded. This, in turn, has made it possible to use time periods for learning that were unavailable before. Moreover, learning with mobile devices opened up new possibilities for situated learning, i.e. problem-based learning in real-life situations” (Moebert, Zender and Lucke, 2016).

Mobile learning instructional concept is to utilize the internet to provide teaching materials that can be accessed at any time by visualization of interesting material. Mobile devices offer a variety of sensors and interaction options that can be used to gather contextual information. The challenge is to identify those pieces of contextual information that are considered most relevant by the authors of educational software and can still be reliably detected (Moebert, Zender and Lucke, 2016: 24). Mobile technology offers a plethora of features and benefits that enable it to break the educational system wide open, engaging students in new ways and making educational experiences more meaningful, if schools can effectively utilize structured, integrated approaches for implementation of this new technology (McQuiggan et al., 2016). The use of mobile learning in education to facilitate teachers and students can communicate easily through the internet facility without being limited by distance, place, and time. Learners can learn or review the instructional materials at anytime and anywhere if necessary, and more effective and efficient. Mobile learning can reach learners in coverage. But to develop instructional-based mobile learning should be based on the theory of education that is appropriate to the context.Specifies the components that are part of a human activity theory system. To understand what is learning, it is important to understand the specifics of this activities, as well as tools used in the process, the rules and the division of labor, community involved in the process, parallel and vertically related activities, interactivity, and contradictions (Engeström 1987 in Churchill, D., Fox, B., and King, M., 2016: 5).

Mobile learning can facilitate communication instructional process, in providing information to teachers and learners with the educational content to help achieve knowledge without questioning the location and time. Creating the mobile learning experience is designed to provide developers with the information they need to enter the educational app market and develop quality resources for teachers and students (McQuiggan et al., 2016). Development can provide educators with the means to effectively use this technology. Professional learning communities within the school or online are great resources for teachers looking for mobile learning support and discussions.

Explores the combination of technology, pedagogy and context improving the flexibility of the new mobile learning contexts to provide increasing student personalization and to collect data of individual learning styles and strategies (John G. Hedberg in Huang Ronghuai, Kinshuk, et al., 2016: v). Opportunities of mobile learning and the barriers it breaks by social and other forms of communication and collaboration promise more that the rather limited and still largely didactic e-learning models available in many educational ecosystems (John G. Hedberg).

Propose the following orthogonal model as a means of further conceptualising authentic mobile learning (Burden, K., Kearney, M., in Huang Ronghuai, Kinshuk, et al. 2016: 36-37). Conceptual model of authentic mobile learning,

1. Identify Context as a critical vector in understanding how and where the learning activity is situated and use the terms 'simulated' and 'participative' as the binaries for this continuum.
2. Planning Design measures the extent to which the learning activity is planned or unplanned in a similar way to the model developed.
3. Personal Relevance and consequent engagement of the learner since this has emerged across many studies as a highly significant but often neglected element of authentic learning.

Development of Instructional Model of Mobile learning

Develop mobile learning adapted to the principles of learning theory, in order to select and make a variety of approaches in appropriate instructional strategies. Instructional strategies designed is to select strategies to motivate learners to learn, facilitates learning, serving individual differences, lifting meaningful learning, encourage interaction, provide feedback, facilitate contextual learning, and encouraging during the learning process. Learning resources that are packaged electronically and is available to be accessed by students via internet, the learners can interact with learning resources anytime and anywhere.

Designing instructional to mobile learning is to create information that can be accessed by teachers and learners with a web application. Web is used as a medium to deliver and develop the freedom to explore the instructional materials, as well as providing interaction among students and students with an instructor. Therefore, to develop mobile learning requires special attention and consideration in making an application design. Application design interface can be implemented as a system program works by providing learning materials application view. Seven essential implications that the science of learning has on the design of mobile technologies for learning by McQuiggan et al.:

1. Acknowledge the bottleneck between sensory and working memory;
2. Facilitate meaningful learning through organization and connections with prior knowledge;
3. When appropriate, encourage automatization of information and operations;
4. Be aware of the limitations of working memory;
5. Carefully and strategically incorporate rewards;
6. Appeal to and/or generate interest;
7. Support metacognitive processes and strategy use, and do not assume mastery of such skills.

Steps Development of Mobile Learning

The use and utilization of technology in education through mobile learning has limitations. Moreover, in Indonesia the infrastructure is inadequate. Internet quality is not stable, it may be too vast area of islands in Indonesia. Limitations, for example in terms of connections, so storage capacity, access and display screens to be limited, as well as resource constraints. Instructional strategies based mobile learning is a planned series of activities including the use of methods and utilization of various resources in an instructional set up to achieve an instructional purpose. Therefore, in terms of instructional development based mobile learning need to consider many things to optimize the use of internet technology in the instructional process with

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measures designed. Here are the steps the development of instructional distance learning (Suparman, 2014: 324-331), adapted from Suparman's model:

1. Identify needs and formulate general instructional objectives, namely to identify competency or learning achievements of learners today compared with the competence or performance are expected due to a lack of knowledge and skills of physical or behavioral attitudes of learners;
2. Conduct instructional analysis, which is the process of elaboration or break the general competence into special competencies and relationships as well as identifying specific competencies;
3. Identify the capabilities and characteristics of early learners; identifying competencies and baseline characteristics of learners, which refers to competencies that have been mastered before following instructional and characteristics of learners related to habits or learning style;
4. Formulate specific instructional objectives; lists the specific competencies that need to be learned by the learners;
5. Creating a benchmark reference test; draw up an assessment tool based on the instructional objectives;
6. Develop instructional strategies, based on one or a group of instructional objectives which contains five components, namely the sequence of instructional activities; sub topic and the subject matter; instructional methods appropriate for the achievement of objectives; media and instructional tools required in each sequence of instructional activities; and time required of students in every instructional activities that achieve instructional goals;
7. Develop an early draft of instructional material based instructional strategies and learning outcomes assessment tool;
8. Conducting formative evaluation of the initial draft to become an instructional material that is ready for use in the field;
9. Implementation, summative evaluation, and diffusion of innovation that is not part of the instructional design but as three further stages of the process of developing instructional materials.

CONCLUSION

Mobile learning can be utilized and developed to improve the productivity of students and teachers in the instructional process to be effective and efficient. Mobile learning makes learning affordable to a great extent. But teachers must have knowledge and skills in the use of mobile learning to help learners achieve instructional goals that have been determined. Utilization of mobile learning is designed based on instructional theory, and designed in accordance with the theory and instructional concepts to achieve instructional goals. Therefore it is necessary to make the steps remotely instructional design tailored to the context in Indonesia.

REFERENCES

Baguley Margaret, Danaher Patrick Alan, et al. (2014). *Educational Learning and Development: Building and Enhancing Capacity*. New York: Palgrave Macmillan.

Blythe Sally Goddard. (2012). *Assessing Neuromotor Readiness for Learning The INPP Developmental Screening Test and School Intervention Programme*. Chichester, West Sussex: John Wiley & Sons, Ltd.

Darmawaan Deni. (2012). *Pendidikan Teknologi Informasi dan Komunikasi, Teori dan Aplikasi*. Bandung: Remaja Rosdakarya.

Darmawaan Deni. (2013). *Teknologi Pembelajaran*. Bandung: Remaja Rosdakarya.

Eisenman Bonnie. (2015). *Learning React Native Building Mobile Applications with Javascript*. Beijing: O'Reilly.

Ellis Viv, Edwards Anne and Smagorinsky Peter. (2010). *Cultural-Historical Perspectives on Teacher Education and Development*. New York: Routledge.

Elrom Elad, Janousek Scott, Joos Thomas. (2009). *Advanced Flash on Devices– Mobile Development with Flash Lite and Flash 10.* New York: Springer.

Gilbert Matthew A. (2015). *edX E-Learning Course Development– Design, Develop, and Deploy an Interactive and Informative Mooc Course for The Edx Platform*. Birmingham: Packt Publishing.

Huang Ronghuai, Kinshuk, et al. (2016). *Mobile Learning Design–Theories and Application*. Singapore: Springer Science + Business Media.

Iversen Jakob, Eierman Michael. (2014). *Learning Mobile App Development–A Hands-on Guide to Building Apps with iOS and Android*. New Jersey: Wesley.

Langr Jeff and Ottinger Tim. (2011). *Agile in a Flash Speed-Learning Agile Software Development*. Canada: Pragmatic Programmers.

Lytras Miltiadis D., de Pablos Patricia Ordonez, Damiani Ernesto David Avison, Naeve Ambjörn, Horner David G (Editors). Second World Summit on the Knowledge Society, WSKS, Chania, Crete, Greece, September 16-18, 2009 Proceedings. (2009). *Communications in Computer and Information Science–Knowledge, Learning, Development and Technology for All*. Verlag Berlin Heidelberg: Springer.

Marbach-Ad Gili, Egan Laura C., Thompson Katerina V. (2015). *A Discipline–Based Teaching and Learning Center–A Model for Professional Development*. London: Springer.

McQuiggan Scott and Jamie, Kosturko Lucy, Jennifer Sabourin. (2015). *Mobile Learning–A Handbook for Developers, Educators, and Learners.* New Jersey: John Wiley & Sons.

Munir. (2013). *Multimedia–Konsep dan Aplikasi dalam Pendidikan.* Bandung: Alfabeta.

Nasution Muhammad Irwan Padli. (2016). Strategi Pembelajaran Efektif Berbasis Mobile Learning Pada Sekolah Dasar. *Jurnal Iqra': Vol. 10, No.01, Mei, 2016*.

Peña-Ayala Alejandro (Editor). (2016). *Mobile, Ubiquitous, and Pervasive Learning–Fundaments, Applications, and Trends, Advances in Intelligent Systems and Computing, Volume 406.* Switzerland: Springer International Publishing.

ISBN 978-602-73030-1-0

Reigeluth, Charles M. and Alison A Carr-Chellman (eds.). (2009). *Instructional Design Theories and Models: Building a Common Knowledge Base. Volume 3.* New York: Routledge.

Scales Peter, Pickering Jo, Senior Lynn. (2011). *Continuing Professional Development in the Lifelong Learning Sector.* London: McGraw-Hill Education, Open University Press.

Suparman M. Atwi. (2014). *Teknologi Pendidikan dalam Pendidikan Jarak Jauh.* Tangerang: Universitas Terbuka.

Verspoor Marjolijn H., de Bot Kees, Lowie Wander. (2011). *A Dynamic Approach to Second Language Developmen–Methods and Techniques, Volume 29.* Amsterdam/Philadelphia: John Benjamins Publishing Company.

Wibawa Basuki, Mahdiyah and Afgani Jarnawi. (2014). *Metode Penelitian Pendidikan.* Tangerang: Universitas Terbuka.

Wirawan Panji Wisnu. *Pengembangan Kemampuan E-Learning Berbasis Web kedalam M-Learning. Jurnal Masyarakat Informatika: Vol. 2, No. 4,* ISSN 2086 – 4930.

Yenni Anggrayni. (2012). Perancangan Mobile Learning Berbasis J2ME untuk Penyediaan Bahan Ajar Perkuliahan Program Studi Pendidikan Ekonomi. *Jurnal Sistem Informasi (JSI): Vol. 4, No. 1, April 2012.*

THE DEVELOPMENT OF CURRICULUM ASPECTS

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Abstract

Achievement of the objectives of lectures by Degeng (1989) was influenced by variable conditions and learning systems. Variable conditions include: 1) the characteristics of students, 2) subjects, and 3) problems. Student characteristics S2 in PPs TP FKIP Unila have a variety S1 graduation. There are from S1 medicine, obstetrics, pure Mathematics, economics, education and others. Behind the diversity there is in common work setting S2 students who study at TP FKIP Unila PPs, that similarity is their work in the field of education. This means that there are differences in prior knowledge S2 students to take a course in curriculum development and learning system. Differences initial knowledge in a lecture needs to be addressed, including through the provision of assistance to students who do not come from the S1 education to be able to take the classes in accordance with the contract that has been set. The next condition variable is a characteristic of the course curriculum development and learning system. Characteristics of the course curriculum development and learning system for S2 students of TP FKIP Unila, in contrast to the same subject in different PPs. The specificity of the core subjects is unification hierarchies, structural and combination of curriculum, development, and its relation to the learning system. That requires a device that is able to accommodate the characteristics of the lecture content as intended. Based on objective analysis of lectures, student characteristics and characteristics variable subjects, concluded needed learning tools for curriculum development with an initial knowledge about curriculum content and its relation to learning systems, development presented by the hierarchy, structural and composite. The aspect of learning as defined had not yet available. That requires the development of learning aspects that can achieve the course objectives to the fullest. The research objective is to develop aspects appropriate in learning curriculum development with student characteristics S2 TP FKIP Unila, the characteristics of the course itself and the existing constraints. To achieve the goal of the development is done using a model of R & D which consists of the stages include product trials. Activities include individual and small group testing, field testing and dissemination in Lampung province. Development produces textbooks that have content validity appropriate for lectures, reading level, the attractiveness of the good category.

Keywords: curriculum development, educational technology.

PRELIMINARY

Lampung University is a state university in the province of Lampung which organizes graduate programs (PPs) educational technology program. The goals of PPs educational technology is to improve the quality of learning and education in Lampung province. To achieve the goals of lectures designed with the subjects that are useful to achieve it, one of the subjects in PPs educational technology is the development of curriculum and learning systems.

The purpose of learning curriculum development system at S2 technology education (TP): 1) have a deep understanding of the concepts and implementation of curriculum and learning systems, 2) have the skills in designing, developing and evaluating the curriculum and learning systems, and 3) have the ability to analyze the

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condition of curriculum development and learning system in Indonesia and able to find a solution. This means that this course is needed by students, so that after students have graduated and holds a master's degree, they will be become someone who are very needed for curriculum development both in their workplace and community. The purpose of this learning can be achieved well, if it is supported by aspects learning.

The purpose of the objectives of lectures by Degeng (1989) was influenced by variable conditions and learning systems. Variable conditions include, 1) characteristics of students, 2) subjects, and 3) problems. Many students of S2 in PPs TP FKIP Unila have different background of their S1 educational. There are educated S1 medicine, obstetrics, Pure Mathematics, economics, education and others. Behind the diversity there is in common work setting S2 students who study at TP FKIP Unila PPs, that similarity is their work in the field of education. This means that there are differences in prior knowledge S2 students to take a course in curriculum development and learning system. Differences initial knowledge in a lecture needs to be addressed, including through the provision of assistance to students who do not come from the S1 education to be able to take the classes in accordance with the contract that has been set.

The next condition variable is a characteristic of the course curriculum development. Characteristics of the lesson curriculum development and learning system for students S2 TP FKIP Unila, in contrast to the same subject in different PPs. The specificity of the core subjects is unification hierarchies, structural and combination of curriculum, development, and its relation to the learning system. That requires the media or aspects that is able to accommodate the characteristics of the lecture content as intended.

Based on the objective analysis of lectures, student characteristics and characteristics variable subjects, concluded the needed of learning aspects for curriculum development with an initial knowledge about curriculum content and its relation to learning systems, development presented by the hierarchy, structural and composite. The aspect of learning as defined had not yet available. That requires the development of learning tools that can achieve the course objectives to the fullest.

Research Purposes. The research aims to develop learning aspects for curriculum development and learning system according with the characteristics of students S2 TP FKIP Unila, subject, characteristics and problems.

RESEARCH METHODS

This research designed use Research and Development (R&D), which consists of the step test individuals and small groups, field testing and dissemination in Lampung province (Figure 1). Test individuals and small groups was conducted to determine the attractiveness of design and ease, a field test to determine the understanding convey the reader to the objectives in the textbook. The expert of this evaluation is the Indonesian and media experts. Field test is the alumni and students PPs TP FKIP Unila. The data is used as reference to improve the prototype. The final result as a prototype repairing is a useful device.

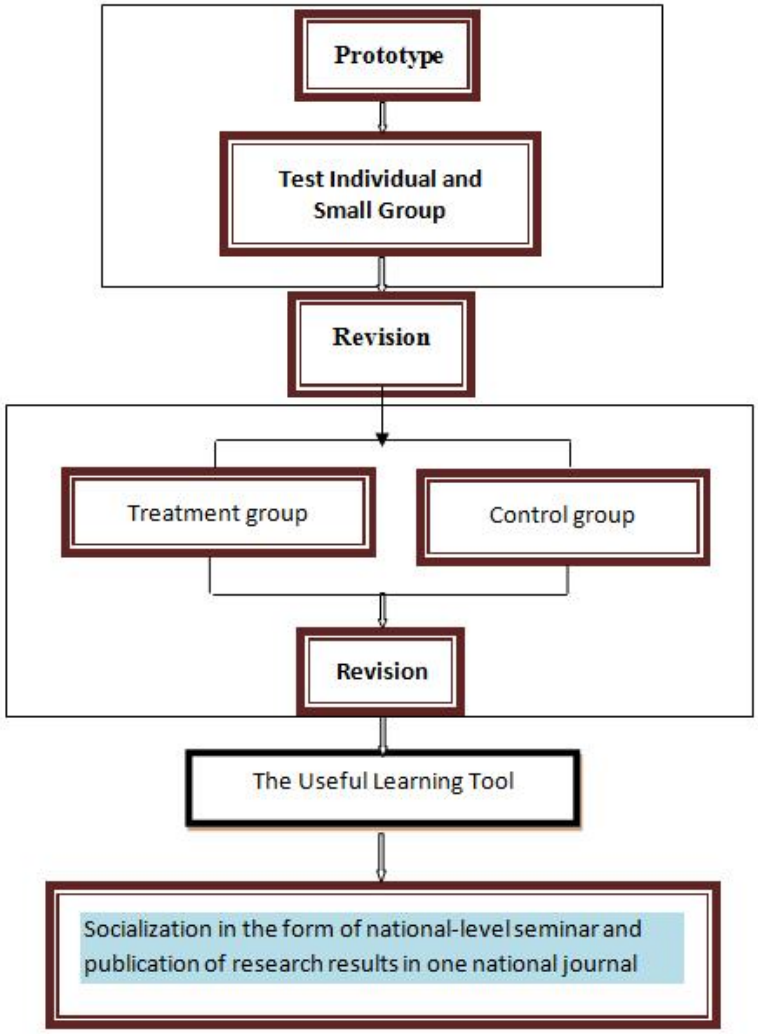

Figure 1: Research and Development Phase

RESEARCH RESULT

Readability is known in two ways: the ease and the understanding readers to the information presented. The attractiveness data can be seen from the designed of textbook. The following is results of data.

Table 1: The Understanding of Data

The Understanding	Criteria
The meaning of the curriculum	Good
Juridical basis for curriculum development	Good
	Good
Function theory curriculum from the view of behaviorism	Good
Function curriculum seen from the view of cognitive learning theory	Good
Function curriculum from the view of constructive	Good

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learning theory	
Function curriculum from the view of humanistic learning theory	Good
The main components of a building curriculum	Good
Curriculum differences in terms of the concept model curriculum	Good
The elements needed to be considered in developing the curriculum	Good
Stages of curriculum development	Good

The understanding research data on the reader to the reading, showing readings contained in the textbook has understood level on both criteria.

Table 2: The Ease Data

Content	Information	Criteria
The using of vocabularies commonly heard	Often	Easy
The vocabulary used is already known	Very	Easy
Vocabulary used frequently used	Often	Easy
Clarity sentence expressing the meaning or purpose	Clear	Easy
images used are able to furnish the explanation given	Clear	Easy
The order of presentation of readings were able to link the relationship between a reading with other readings	Clear	Easy

Research data on the ease of readers to the reading, showing readings contained in the textbook has a level of convenience to the criteria easily.

Table 3: Attractiveness of the Data Display Designed

Content	Information	Attractiveness Criteria
Clarity of form letters are used	Clear	interesting
Clarity font size	Clear	interesting
Spaces are used to help comfort reading	Comfort	interesting
Harmonization of colors used	Good	interesting
The clarity of the images used	Clear	interesting
The resulting mold	Clear	interesting
Typesetting used	Good	interesting

Data from research on the design of the display, show display designed textbook had the attractiveness of the criteria level interesting to read.

DISCUSSION

The existence textbook curriculum development required to facilitate the students to achieve the learning objectives of curriculum development. Interested is expected to be achieved, so far students have the knowledge and ability in developing the curriculum.

Some of the elements that needed attention in developing the curriculum, that the Indonesian curriculum should have populist identity, which means that the

curriculum is completely in favor of the students in the cultural and social context of everyday life (Indratno, 2007). In addition to the popular identity, the identity of the most important people of Indonesia is made up of various tribes spread from Sabang to Merauke. However, although the people of Indonesia have diverse in ethnic, language and culture, the people of Indonesia have a close bond with the philosophy of Pancasila. So that content of textbook curriculum development had attended although the curriculum is developed from time to time, it should not be left out is, the curriculum needs to remain a benchmark study Pancasila and insightful vision of democracy.

As it is known that the Indonesian nation is a nation rich in culture, language and customs. In addition to cultural diversity, the Indonesian people have a diversity of natural resources and geography. This means that other elements that need to be considered by the developers of the curriculum that is a reference in the learning curriculum. Applied learning should be that the intellectual life of the nation and promote national culture Indonesia (Soedijarto, 2007). The same thing also expressed by Tirtarahardja and Sulo (2005), the educational efforts directed also to develop the culture. To achieve the objectives as intended, textbook curriculum development needs to present the relationship between theoretical learning to meet the learning objectives.

According Tirtarahardja and La Sulo (2005), education should always anticipate a future state of society, namely 1) the state of the global society, 2) the rapid development of science and technology, 3) the development of a solid and fast communication, and 4) an increase in professional services. This means that the curriculum should be designed besides Indonesia also based on a community-based Indonesian human prepares future.

To achieve the objectives as expected from the presence of the curriculum, the student needs to have knowledge of. Knowledge needs to be owned by the students presented in the textbook with content as follows:

1. The foundation of the philosophy curriculum development;
2. The theoretical underpinnings of curriculum development;
3. The role of learning theory to design learning;
4. Model curriculum development;
5. Evaluate and test in curriculum development;
6. Sources of data, subject to data sources, data processing, and the sample population;
7. Miscellaneous evaluation of learning outcomes.

To support the learning outcomes as expected, textbooks are developed according to the needs should have a good level of legibility by category and has the attractiveness of the good category anyway. Textbook developed in this study has met the criteria of legibility and attractiveness of the good category. Readability textbook using instruments known to ease and understanding reader to the reading textbook. The attractiveness of the design can be seen by the resulting of the display.

CONCLUSION AND FUTURE STUDY

Textbooks curriculum development is a learning resource that contains content, 1) the foundation philosophy of curriculum development, 2) theoretical basis for curriculum development, 3) the role of learning theory to design learning, 4) a

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model of curriculum development, 5) evaluation and testing in the development of curriculum, 6) the source of the data, the subject of data sources, data processing, and the sample population, and 7) Miscellaneous evaluation of learning outcomes.

Textbooks need to have good legibility by category and attractiveness of the good category. Textbooks curriculum development results of this study have legibility and attractiveness of the good category.

REFERENCES

Degeng, I.N.S. (1989). *Ilmu Pengajaran: Taksonomi Variabel*. Jakarta: Departemen Pendidikan dan Kebudayaan Dirjen Pendidikan Tinggi.

Indratno, A.Ferry T. (Ed). (2007). *Kurikulum yang Mencerdaskan*. Jakarta: Kompas.

Soedijarto, H. (Ed). (2007). *Kurikulum yang Mencerdaskan*. Jakarta: Kompas.

Tirtarahardja, Umar., La Sulo, S.L. (2005). *Pengantar Pendidikan*. Jakarta: Asdi Mahasatya.

E-LEARNING IMPLEMENTATION IN THE RELIGIOUS HIGHER EDUCATION WITHIN THE DIRECTORATE GENERAL OF ISLAMIC EDUCATION MINISTRY OF RELIGIOUS AFFAIRS OF THE REPUBLIC OF INDONESIA

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Abstract

E-learning is a means to improve the quality of learning, which can improve the efficiency and effectiveness of learning. E-learning is an innovation of educational technology has been widely used in the world of education. This article discusses the study of theory and examples of the implementation of e-learning in education, more specifically on religious higher education within the Directorate General of Islamic Education Ministry of Religious Affairs of the Republic of Indonesia, where e-learning is developed and utilized in conjunction with the learning face to face in the form of blended learning. At the end of this article to discuss the conclusions and giving advice for researchers and decision makers in education in implementing e-learning and blended learning effective and efficient in learning.

Keywords: e-learning, blended learning, educational technology

PREFACE

The development of e-learning as an alternative learning in various educational and training institutions is increasing in line with developments in the field of communications and information technology. The presence of modern technology provides another option to the world of education in addition to participating in use. Education needs to anticipate the impact of global knowledge-based society, where science and technology play an important role as a major driver of change.

Directorate General of Islamic Education as one unit under the Ministry of Religious Affairs has a responsibility in improving the quality of religious education in Indonesia. In line with the government's commitment to allocate the education budget by 20% of the state budget, Islamic education programs today has touched a number of strategic targets, such as improving access, quality and relevance of Islamic higher education, improvement of service quality religious education, etc. The unit was in charge of a number of schools and colleges Islamic religious formal and informal, both public and private. Improving the quality of educational programs and services could not be separated from technological advances appropriate to be used, one of them in the form of e-learning that can be petrified of informing in training and learning, as well as a tool to improve performance.

The following article will discuss the development and implementation of e-learning in the Directorate General of Islamic Education at the College of Religious particularly Islam.

THEORETICAL OVERVIEW

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E-Learning in Educational Technology

In essence, technology education is a discipline concerned with solving the problem of learning that is based on a set of principles and using a variety of approaches. The term e-learning can be defined as a form of applied information technology in education in the form of virtual schools.

E-learning definition itself is actually very broad, even a portal that provides information about a topic can be included within the scope of e-learning. However, the term e-learning is more appropriately addressed in an effort to create a transformation process of teaching and learning in school into a digital form that is bridged by the Internet and electronic technology. E-learning is a learning condition that allow the distribution of teaching materials to learners by using the internet, intranet or computer network. Some studies show that the effects of different technologies in different contexts or from time to time.

Research results by Fryer, et al., (2014) at Kyushu Sangyo University Japan revealed that there are two groups of students' attitudes to the presence of e-learning is motivated learning by learning to use e-learning and are not motivated, learners are motivated to learn through e-learning in the beginning no trouble those who did not have the motivation at the beginning, so that the results would be different in the two groups, it can be anticipated with the proactive attitude of instructor in motivating their students, as well as updating persistent in learning content with things attractive so as to avoid boredom.

Many studies have found that online learning approach is more effective than face-to-face in improving learning outcomes. Research conducted by Jason & Johnson (2016) found that training with socializing face to face causing learn better than online socialization or lack of socialization. This suggests that the ability to get to know the other participants in a richer environment can provide benefits to the participants, and that there is value in bringing participants together physically to help them connect with each other.

In line with the results of previous studies that Bernard et al., (2004: 397) found that distance education and traditional classroom learning is comparable in terms of its effect on achievement. The authors found considerable variability lots of research findings about the effectiveness of distance education, so they concluded that some of the applications of e-learning in distance education provides better results than classroom learning, and some worse where the researchers found that the impact of distance education the attitudes and retention of students studying online only worse than students who follow classroom learning.

A meta-analysis by the US Department of Education (2009) found that students in online learning have greater results than students receive learning face to face, but the impact is better to be obtained on learning program that combines online approach by face-to-face or lots known as blended learning.

Development of E-Learning in Higher Education

E-learning has been widely understood as the convergence of Internet technology and learning methodologies. Like many other higher education institutions around the world, universities in Indonesia also have started the implementation of ICT to facilitating learning. E-learning has been widely used all over the world thanks to the widespread use of the web and an advanced management system, is no exception to the college.

> *Colleges and universities are being called upon to adapt to the changing nature of student interests, characteristics, and behaviors. Such changes range from the structure of residence hall rooms and the food selections offered in cafeterias to the kinds of digital materials libraries acquire and how technology is utilized to facilitate learning* (Kengwee & Maxfield, 2015: 22).

The level of comfort with technology among young people and the hope for wider access to higher education is a factor that forced the college administrators to explore more opportunities to make the program available for students that can be accessed from outside of the classroom or campus.

> *In terms of online and distance learning, the University has had a long-term commitment to using technology appropriately to support both local and remote learners. It has a history of investment in innovative projects and initiatives to support experimentation with learning technologies, and developed a culture of positive attitudes about learning technology that is visible at all levels in the institution (Porter, 2015: 29).*

There are several regulations to be the reason for some universities to develop e-learning, including:

1. The Law of the Republic of Indonesia number 20 of 2003 about National Education System:
   a. Chapter 1 General Provisions Article 1 number 15: "The distance education is the education of learners who separate from educators and learning using a variety of learning resources through communications technology, information, and other media."
   b. In the explanation of Article number 35, in the 1st paragraph: Standards of educational facilities include classrooms, a gym, a place of worship, libraries, laboratories, workshops, a playground, a place to be creative and recreation, and other learning resources needed to support the learning process, including the use of information and communication technology.
2. Accreditation standards of undergraduate study program books number 6.5& 3A about standard in the Information Openness field comprises components of e-learning as one of the benchmarks assessment in terms of availability of information systems and facilities used for the learning process (BAN-PT, 2011).

Implementation of E-Learning In the Islamic Higher Education

One of the missions of the Ministry of Religious Affairs is to improve the quality of religious education (KMA 2, 2010). The institute is responsible for determining the policies and direction of the religious system in Indonesia including its higher education component. Ministry of Religious Affairs is organized into 11 (eleven) units, one of those is Directorate General of Islamic Education that is in charge of more than four thousand units of the working field of religious education begin basic education to higher education. Here are some examples of the use of web-based e-learning at several religion universities at the Ministry of Religious Affairs. Some of the features used among others to display announcements, forum communication students and lecturers, lecture materials, online lectures, assignments, and so forth.

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Figure 1: E-Learning in Sunan Kalijaga Yogyakata Islamic State University

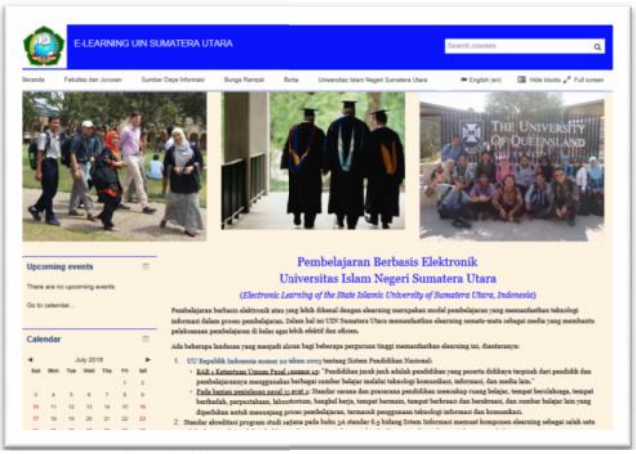

Figure 2: E-Learning in Sumatera Utara Medan Islamic State University

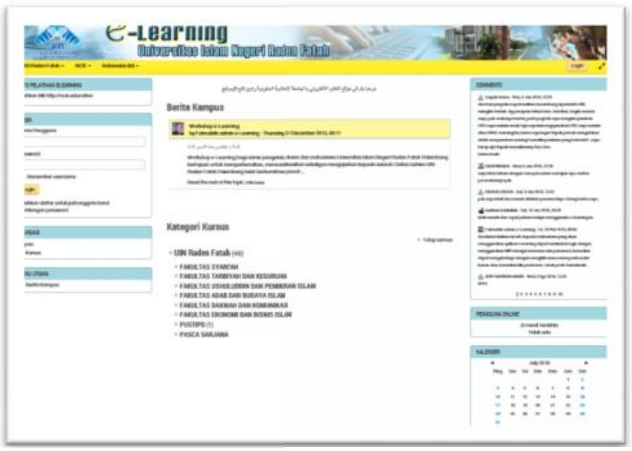

Figure 3: E-Learning in Raden Fatah Palembang Islamic State University

E-learning in this case is not intended to replace face-to-face classroom activities, but as a medium that helps to improve the effectiveness and efficiency of the delivery of learning materials. Work units engaged in religious education has a lot to develop e-learning, the image above is three of 55 see e-learning that has been

developed and implemented in a religious college environment at the Directorate General of Islamic Education Ministry of Religious Affairs.

> *Fuelling the growth of blended learning is the belief that blended learning is able to meet the educational needs of students, particularly adult learners. For example, many graduate students may have work and family responsibilities* (Hew & Cheung, 2014).

A mix method of e-learning with face-to-face learning in the classroom is more popularly known as blended learning, learning that this model is widely adopted by universities in the Ministry of Religious Affairs today. Their e-learning does not mean replacing the conventional model of learning in the classroom, but reinforce the learning model through the enrichment of content and the development of educational technology.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. There have been many universities in Indonesia who have been using e-learning in the learning process;
2. The use of e-learning in religious colleges under the Ministry of Religious Affairs solely as a medium that helps the implementation of learning in the classroom to be more effective and efficient;
3. Learning to use e-learning may be as effective as traditional classroom learning, but the purpose and context of the use of such technologies must be a major consideration.

Recommendations

1. Application of e-learning should provide features that are associated with learning needs;
2. Development of e-learning applications requires periodic management is always up to date in order to follow the development of learning;
3. With rapid technological developments, the security system of e-learning applications also must be improved;
4. The implementation of e-learning has always strived to maintain the confidentiality of user data and other important data;
5. At colleges that still apply the learning face to face, then administrator and the instructor should always proactive motivate learners optimize leaning blended learning facilities are developed;
6. Future research could be developed towards the use of technology in facilitating learning multiplatform such as mobile and ubiquitous learning.

REFERENCES

Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., &Wozney, L., et al. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research.*

BAN PT. (2011). *Borang Akreditasi Institusi Perguruan Tinggi.* Jakarta: Badan Akreditasi Nasional Perguruan Tinggi-Kementerian Pendidikan Nasional.

Constitution of the Republic of Indonesia number 20 of 2003 on National Education System.

ISBN 978-602-73030-1-0

Fryer L.K., Bovee H.N., & Nakao N. (2014). *E-learning: Reasons students in language learning courses don't want to.* Contents lists available at Science Direct Computers & Education. Journal homepage: www.elsevier.com/locate/compedu.

Hew K. F. & Cheung W.S. (2014). *Using Blended Learning Evidence-Based Practices.* Singapore: Springer Briefs in Education.

IAIN Raden Fatah. *E-learning of Islamic State Institute Raden Fatah Palembang*. Retrieved from http://e-learning.radenfatah.ac.id/.

IAIN SU. *E-learning of Islamic State University Sumatera Utara*. Retrieved from http://elearningiainsu.com/.

Kengwee J. &Maxfield, M.B. (2015). *Advancing Higher Education with Mobile Learning Technologies Cases, Trends, and Inquiry Based–Method.* USA: IGI Global.

KeputusanMenteri Agama (Decree of the Minister of Religious Affairs) Number 2 Year 2010 about the Strategic Plan of the Ministry of Religious Affairs 2010-2014.

Porter, Sarah. (2015). *To MOOC or Not to MOOC How Can Online Learning Help to Build the Future of Higher Education?*. USA: Chandos Publishing is an imprint of Elsevier.

UIN Sunan Kalijaga. *E-learning of Islamic State University Sunan Kalijaga* Yogyakarta. Retrieved from http://learning.uin-suka.ac.id/.

U.S. Department of Education. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, D.C.: U.S. Department of Education, Office of Planning, Evaluation, and Policy Development.

Yason Regina & Johnson R.D. (2016). *An empirical examination of e-learning design: The role of trainee socialization and complexity in short term training. Journal of Computers & Education 101 (2016) 43-54 journal homepage: www.elsevier.com/locate/compedu.*

PROFESSIONAL EDUCATION DEVELOPMENT TO BE MOBILE LEARNING FOR COMPETENCE AND INDEPENDENCE STUDENTS

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Abstract

The purpose of this research is to study the development of professional education of students so that students are more mobile, competence and independence. This research is expected to provide useful information or images for faculty and students Nommensen improve educational technology and instructional design development. This research was conducted for students of mathematics that administer education profession courses, semester Six (VI) of the school year even 2016. The method used is the method of survey research, and study the causal relationship. This study examines and analyze direct connection that runs clockwise or referred to a causal relationship, this relationship is called path analysis. Variables used consisted of four variables: (1) Profession Education; (2) competence; (3) Independence, and (4) Mobile Learning.

Keywords: *Profession Education, Competence, Independence, Mobile Learning.*

INTRODUCTION

Background of Study

Role of professionalism Teachers and professors are as professional educators with the primary task of educating, teaching, guiding, directing, train, assess, and evaluate students on early childhood education, formal education, primary education and secondary education and as a facilitator of the teaching workforce. Professional is a job or activity carried out by a person's life and a source of income that requires expertise, skills, or skills that meet certain quality standards or norms and require professional education.

Law on Teachers and Lecturers (UUGD) is a political decree that the educator is a professional job, which is entitled to rights at the same time professional liability. With that expected, educators can devote totally to his profession and to live worthy of the profession. In UUGD No. 14 of 2005 determined that an educator must have academic qualifications and competence of educators as agents of learning. Professional competence of educators includes pedagogic competence, personal competence, professional competence and social competence.

Disability profession allowed to say that he is unable or experts in certain work, so long as his testimony with real evidence that he is actually able to carry out a job that is claimed to be his forte. However, the recognition that ideally come from the public or service users with the profession or departing from scientific papers or other work product generated by the profession rose. Recognition is based primarily on the conceptual-applicative abilities of persons with the profession.

Childbirth educator profession's competency Professional Teacher Education, known by the institution; Higher Education Institute of Teacher Training (LPTK) which produces professional teachers. Various attempts have been made to improve the competency of teachers. Certification of the portfolio, with PLPG certification,

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has not shown the expected results. In fact, every year thousands of graduates produced LPTK; it is not proportional to the number of teachers needs, resulting in oversupply. So to get superior teachers, Professional Teacher Education is a way out. And if at this time until the next few years Professional Teacher Education policy concerning its inputs are only those who have carried out devotion through SM-3T, then eventually only those who are truly called to be a teacher alone will be a teacher. Teachers make himself the role of being a professional teacher.

Responding to the challenges of business competition in the era of globalization and liberalization, each institution is required to have a competitive advantage is supported by intelligence organizations to manage knowledge through a continuous learning process. Since the 1990 introduction of knowledge, learning organization plays equip enterprise organizations with the knowledge base in order to win the competition. Organizational learning is needed in educational institutions, especially in the face of environmental change very quickly. For executives and managers who realize the importance of learning organizations definitely need clear guidance and practical steps to realize the learning organization in the process of management education.

Organization (= set or organize), meaning that take into-discover the difference value to form a new universal values, leading to a general improvement. Arrange or organize an enhancement of the value added to the organization's systems, including the relationship of the value with other value. Stabilization and value that has its priorities. Examples of effective levels of organization are the value of learner support enforcement of national discipline that has been proclaimed by Mr. President Suharto on the anniversary of national independence in 1995.

Characterization by evaluation or calue complex (characterization by a value or complex values). Characterization by value or calue complex (= characterization by a value or complex values), the integration of all value systems that have been owned by someone, which affects personality and behavior patterns. Here the process of internalization has occupied the highest place go-between a hierarchy of values. That value has been consistently embedded in the system and has affected his emotions. This is the highest effective level, because the inner attitude of the students have been really wise. She already has an established philosophy of life. So at this level learners already have a value system that has been controlling the behavior for a long time, thus forming the characteristic "pattern of life" behavior persists, consistent and predictable.

To form the characteristic "lifestyles" and behavior consistent for students of mathematics, mathematical studies program students are expected to become more independent student learning through the influence of the profession of education, competence and organizational learning enables students to become independent student. In connection with the importance of competence and learning organizations to gain independence of students, researcher’s limit their research was limited to students of mathematics education that overflow profession education course toward independence more optimal math student. Then it is necessary to examine how the influence of a professional learning education, competence and organizational learning student is able to independent for mathematics students. In accordance with the above background, the researchers need to carry out research on the development of learning: ”The Effect of Professional Education Learning, Competence and

Independence Organization against Student Learning Math FKIP Nommensen Pematangsiantar"

DISCUSSION AND CONCLUSION

Literature Review

The "organization where people are constantly developing the capacity to create the results they truly desire, where new thinking patterns and developing nurtured, where the aspirations of the group were given freedom, and where people are CONSEQUENTIAL constantly learning to learn (learning to learn) something together "(Peter Senge, 1990). He also proposed definition of organizational learning as a discipline to develop the potential capability of individuals in an organization known as The Fifth Discipline as follows:

- Thinking Systems (Systems Thinking);
- Personal Mastery (Personal Mastery);
- Pattern Mental (Mental Models);
- Vision Shared (Shared Vision);
- Learning Team (Team Learning).

Swanson and Holton (2001) concluded that organizational learning as a strategy to improve performance is affected by factors of learning, organizational learning and strategic factors of innovation factors, as follows:

- Learning, especially the improvement of learning at the level of the team and the organization will increase organizational innovation;
- Acceptance organizational learning strategies appropriate for the organization to enter the market where innovation drives the basic performance (key performance drivers);
- Innovation is expected to result in improved performance outcomes (performance outcomes) that will enhance the competitive advantage of organizations.

Research conducted Chase and Mayo in Beardwell and Holden (2001) showed that the obstacles that companies face in implementing knowledge-based organization located in the corporate culture and the limitations of the use of information technology to support organizational learning. Lahteenmaki (1999) expressed some criticism of the concept of a learning organization, namely: The absence of clarification and multiplicity of definitions and the absence of a detailed explanation on the implementation of a learning organization system.

The absence of explanation of how the system integrates organizational learning. Implementation of a learning organization a failure is due to several reasons, according to research Lahteenmaki (1999), among others: Less consider the feelings of uncertainty and anxiety of employees in the face of competition and changes in the environment; the employment situation is less trust; less feedback, motivation, discussion and empowerment

Objectives

The results of this study are expected to provide useful information or images for faculty and students Nommensen as a reference in improving the performance to improve performance through training and continuing education, coaching to higher level and beneficial for the country.

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As an educator to note the increase in human resources through the provision of training and education to its students not only pay more attention to physical development. But it is worth considering the factors of learning development, professional lecturer, competence and organization of student teaching in particular stakeholder institutions educators who hold positions in the institutions/agencies.

Graham Cheetham, G. E. Chivers explained that the definition of the profession is: "A vocation or calling, especially one that involved some branch of advanced learning or science." A call or a call, particularly those involving some branch of advanced learning or science. A vocation that requires training, such as in law, theology, and science. The word we hear increasingly popular profession in line with the strong demand in the professional ability to work. Whatever the shape and type of work, professional ability has become the need of the individual.

Professionalism comes from profession means jobs. According Aripin (1995) profession with a similar meaning to the word occupation or a job that requires skills acquired through education or specialized training. Sense of professionalism is a view of the expertise that is required in a particular job, which was only acquired expertise through special education or special training. (Aripin, 1995: 105). So professionalism leads to the commitment of the members of proofs to improve their professional ability and continuously develop strategies he used in doing the work in accordance with the profession to which it aspires.

Millerson (1973, pp. 1-2) suggests there are three alternative methods were used to identify the profession, namely:

1. Looking for a set of characteristic traits or associated with professions. (For a set of characteristics or traits associated with the profession.);
2. Looking for evidence of professionalization (the process through the occupation are said to become professions. (Look for evidence of professionalization (the process by which the occupation is said to be a profession));
3. Developing a model of professionalism based or certain of sociological aspects of professional practice (Developing a specific model of professionalism based or sociological aspects of professional practice).

Methodology

Sampling Used

The study was conducted at the Campus FKIP Nommensen Pematangsiantar. The choice of location study determined intentionally (purposive). When the study began in February until July 2016.

Population

The population in this study was all students who took the department of math FKIP professional education courses the semester V (odd) Nommensen Pematangsiantar.

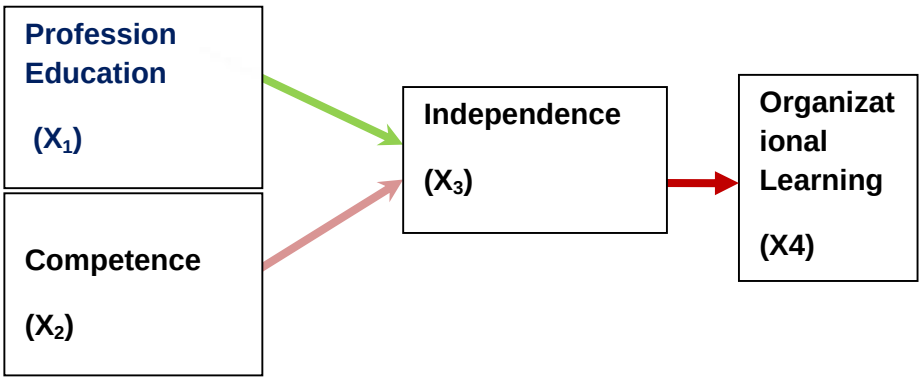
Sample

The sample in the study were all students of mathematics department of the semester V (odd) group A and B, which overflow professional education courses, the sample amounted to 80 students of department of mathematics. Where the group A and group B were 40 numbered 40 is also incorporated in the teaching profession course. Samples are taken randomly and the sample size taken proportionally.

Procedure Collecting Data

The method used is the method of survey research, and study the causal relationship. This study examines and analyze direct connection that runs clockwise or referred to a causal relationship, this relationship is called track analysis. Furthermore Ferdinand, said to see the causal relationship to be tested in order to facilitate researchers better described with the path diagram. In this case the relationship between the study variables and measuring the effect of one variable to another variable.

According Kerlinger, path analysis as a technique to examine the causal relationships in correlation research. In this case based on the ways in which the objectives to be achieved in this study and also by some experts, the method used in this study is a survey method with path analysis (path analysis). Variables to be analyzed consisted of four variables: (1) Profession Education; (2) Competence; (3) Independence; and (4) Organizational Learning. The pattern of association between variables can be seen in the picture below:



Data Analysis

The data required for this research included primary data and secondary data. Primary Data include: (1) the teaching profession; (2) competence; (3) independence; and (4) organizational learning.

Procedures for implementing the test instruments are: (a) determine the respondent trials; (b) the implementation of trials; (c) analysis instrument. Instrument development process begins with determining the respondent then proceed with drafting instrument refers to indicators of each variable. Objective testing instrument is to test the validity (validity) and reliability (reliability) grains of instruments to be used in research.

Trials conducted with respondents instruments that are not included in the study sample. According Arikunto, the validity of the instruments developed need to be tested. Furthermore, according Singarimbun test sample should be outside the study sample, but the situation is more or less the same as the sample with the number of 30-50.

Validity testing to see the extent to which the instrument can measure what you want to measure and views on the validity and reliability of the instrument. Kerlinger, argues that there are three different ways that the principal saw the validity of an instrument is as follows: (a) construct validity, (b) validity on the basis of criteria, and (c) validity of the content.

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In this study using the construct validity means that the preparation of instruments based on theoretical assessment, an instrument which is both conceptually said to have good construct validity, item analysis needs to be done by means of correlating the score of each item with the total score, to get the points are valid. The purposes of the trial data analysis, for have grain-bouts are valid and determine the reliability of the instrument, where the instrument must meet two requirements are valid and reliable. This means that the grains based on theory and opinion of researchers have been grouped into the aspects to be investigated and for these points need to be tested empirically. Testing is done to see whether the grains question had indeed measure what should be measured.

The validity of the instrument performance, emotional intelligence and organizational commitment innovatively tested using correlation coefficient between scores grains with a total score (r count) through correlation techniques Product moment (Person). The analysis was performed on all the items of the instrument. The criteria for testing by comparing the price with the price count r table with $\alpha = 0.05$. Reliability testing instruments useful to look at the consistency of the answers given toddler and his mother, data analysis using Cronbach Alpha * *. Thus the instrument already undergone a process of trial and demonstrated the validity and reliability high, the instrument can be used in the collection of data required in the study.

REFERENCES

A.Koontz, Crryl O'Donnell & Heinz Weihrich. (1994). *Management*. Singapur: McGraw Hill Book Co.

Cary Cherniss. (2007). *Emotional Itelligence, What it is and Why it Matters*. Retrieved from *What%20is%20emofional%20lntelligence.htm.*

Daniel Golemen. (1995). *Emotional Intelligence: Why Lt Can Matter More Than IQ*. New York: Bantom Book.

Gary Yukl. (2002). *Leadership Organization*. New Jersey: Prentice-Hall, Inc.

Handoko,H.T. (1996). *Managemen Personalia Dan Sumber Daya Manusia Edisi ke-2*. Yogyakarta: BPFE.

Hill Nigel. (1996). *Hand book of Customer Satisfaction Measurement*. Gower Publishing Limited.

Howard Gardner. (1985). *Frames of Mind: The Theory of Multiple Intelligence*. New York: Basic Books, Publishers, Inc.

Hurst David K., Crisi and Renewal. (1995). *Meeting The Challenge of Organizational Chang*. Boston: Harvard Business School Press.

James J.Gibson, Jhon Ivancevvick, & James H. Donelly. (2006). *Organization: Behavior, Structure, Proceses*. New York: Mc Graw-Hill.

Lapierre Jozze. (2000). Customer-Perceived Value in Industrial Contexts. *Journal Of Bisnis and Industrial Marketing: Vol.15, No. 2/3*.

Mark A Stiffler. (2006). *Performance: Creating the Performance-Driven organization.* New Jersey: John Willey Son, Inc, Hoboken.

McShane and Von Glibov. (2007). *Organization Bahavior*. New York: McGraw Hill Companies, Inc.

Michaeal Armstrong, & Angela Baron. (1998). *Performance Management.* London: Institute of Forsonal and Development.

Noeng Muhajir. (2001). *Identifikasi factor-faktor Opinion Leader Inovatif bagi Pembangunan Masyarakat*. Yogyakarta: Rake Sarasih.

Noeng Muhajir. (2001). *Identifikasi factor-faktor Opinion Leader Inovatif bagi Pembangunan Masyarakat*. Yogyakarta: Rake Sarasih.Patton, Patricia. (2000). *EQ Pelayanan Sepenuh Hati.* Jakarta: Putaka Delapratasa.

Paul Hersey and Kenneth H. Blanchard. (1986). *Manajeman Perilaku Organisasi: Pendayagunaan sumber daya manusia.* Translated by Agus Dharma. Jakarta: Erlangga.

Robert K. Cooper and Ayman sawaf. (2002). *Executive EQ Kecerdasan Emosional dalam Kepemimpinan dan Organisasi*. Jakarta: PT Gramedia Pustaka Utama.

Robert S. Feldmen. (1989). *Essentials of Understanding Psychology*. New York: McGraw Hill Inc.

Stephen P Robbins. (1984). *Essentials of Organization Behavior*. New Zealand: Prentice-Hall.

Suyudi Prawirosentoso. (1990). *Kebijakan Kinerja Karyawan.* Yogyakarta: IKPI.

Wetzels Martin. (1998). Marketing service Relationships: The Role of Commitment. *Journal of business and Industrial Marketing: Vol.13, No. 4/5*.

William J. Rotwell, & Caroliyn K. (2000). *Human Performance Improvement.* Houston Texas: Guif Publishing Company.

Van de ven, Control Problems in the managemen Innovation cited from *Managing* by Todey Robbins.

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DEVELOPMENT OF ELABORATION MODEL-BASED MATHEMATICS MODULE IN IMPROVING THE LEARNING ACHIEVEMENT OF GRADE IV STUDENTS OF ELEMENTARY SCHOOL ABSTRACT

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Abstract

This research aims at (1) finding out the development design of mathematics learning module in elementary school based on elaboration model, and (2) finding out the efficacy of mathematics learning through elaboration model on grade IV students of elementary school at second semester.

The research development result shows that (a) Elaboration model in Mathematics learning module development of elementary school students are done in four steps which comprises of (1) the production of epitome, (2) material elaboration, (3) summary, and (4) synthesis, (b) elaboration model needed teacher creativity in designing mathematics learning material needed to be done in thematic, integrated and interfaced to other lessons. Consequently, the lesson did not co-opt to mathematics symbol but it contained things to describe and orient to the environment based on theme that was expected as well, (c) learning structure and hierarchy was arranged systematically in order to be different as it arranged on elementary school mathematics textbooks based on K-13 curriculum

Keywords: Mathematics Module Development, Elaboration Model, Mathematics Learning Achievement of Elementary School

INTRODUCTION

Elaboration learning model is a strategy to organize the content of learning. This is a model supported by the cognitive psychology as becomes the basis for the birth of cognitive learning model. The cognitive psychology is the basis of this elaboration theory. There are two things that support the authenticity of elaboration theory, namely (1) theory on cognitive representation structure, and (2) coding, storing, and recalling what has been delivered, and restating of what has been memorize. The characteristics of elaboration learning model are starting the learning through presentation of the content from the generic to specific level ((Uno, 2011: 142).

The findings on the field based on interview conducted at SD Negeri 2 Dolong B, was that the learners are less skilled in problem solving if the problems are presented in slightly different context than those of the teacher. Students are used to follow whatever presented by the teacher without having to develop their own critical thinking. Problem-solving difficulty is faced by the students in grade IV of SDN 2 Dolong B, especially on understanding and motivation of learners.

There are several factors that trigger the above problems, such as, domination of teachers during the learning process; hence the students do not comprehend the concepts of the materials. The learning model used in problem-solving does not

encourage students to develop their critical thinking, because the teacher is pursuing the accomplishment of topics and lack of learners' understanding on concept. In addition, in appropriate learning method also caused the lack of students' skill in problem solving, which eventually lead to low learning achievement.

In relation to the above problems, a learning model to make the learning objective efficient and effective needs to be developed. Therefore, this research takes on the theme of mathematics development module, with the title of "Development of Elaboration Model-Based Mathematics Module in Improving the Learning Achievement of Grade IV Students of Elementary School."

THEORETICAL BACKGROUND

The Nature of Learning

According to Robert M Gagne in his book *The Conditions of Learning*, 1970. He said that learning is a change or one's ability that can be internalized but it is not due to growth. Changes in learning are shown through changes in behavior, by comparing one's behavior before and after exposure to the learning situation.

Meanwhile, according to Anita E. Woolfolk in her book *Educational Psychology*, 1995.She said that learning is a process where experience brings about permanent changes in knowledge and behavior.

Development of Mathematics Module

Development of mathematics module is one of the forms of individual learning. Russel (1990) said that module is a package of learning that consists of one concept unit of the learning materials. Further, Gagne (1979: 274) proposed that module leaning is a unit of learning that can be finished in average of two weeks. On the other hand, Dick and Carey (1985: 8) viewed module as a unit of learning that presented in writing, especially is self-instruction learning with one integrated theme and provide needed information in learning.

The development of mathematics module is based on Keller's (1983: 383) theory on customer's satisfaction which postulated that a product that had been used are no longer able to be satisfy the development and needs of the users. This theory is leaning toward the needs of the user to be simpler, and based on the development of technology. In the context of mathematics module development, an adjustment to technological advances and the needs of the customer is needed. Hence, customer's satisfaction service is applicable, where teacher and students are the customers or users of this learning module, in this case, the mathematics module for grade IV of elementary school.

The current description of mathematics learning in elementary school is that teachers that still based on the old practices, and it is considered as outdated with the development of technology. This advance on technology demands adjustment through implementation and organizing of learning strategy. The intended strategy is on the implementation of organization of learning materials. Teacher asks learners to make summary of learned topics without any clue on how to summarize that topic. If this situation allowed to continue, not only the students will be trapped on making summary that they do not understand, but also the simple aspect of the learned materials would never be understood and gained by the students. Hence, this is why development of mathematics module is important.

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Characteristics of the Module

Depdiknas (2008: 3-5) stipulated that an appropriate module has to meet the following requirements: *(1) self instructional, (2) self contained, (3) stand alone, (4) adaptive* and *(5) user friendly.*

Depdiknas (2008: 3) elaborated that through learning module, an individual or a learner is expected to self-learn, and not depend on others. Relevant to this, Rahayu (2009: 89) said, "one of the characteristics of learning module is it is designed for independent learning system."

Elaborative Model

Reigeluth, (1989) said that there are three types of learning strategy that play important role in learning achievement. Those are: (1) *delivery strategy*, (2) organizational *strategy*, and (3) *management strategy*. One of the organizational strategies in learning is organization of learning materials. This research intends to further explore the extent of learning materials organization strategy.

Elaboration theory is a theory on learning design that is based on the argument that learning has to be organized from generic topics to complex or specific topics in the hope of developing the comprehension of more meaningful context, hence, it brings about the development of integrated ideas. This definition is proposed by Charles Reigeluth of Indiana University and his colleagues in 1970s. This concept has three consecutive keywords, elaboration of concepts, elaboration of theory, and simplification of conditions.

According to Degeng, (1989: 114) that "elaboration theory is a theory on learning design which argues that learning has to be organized from simple to complex learning by developing the understanding of more meaningful contexts, hence, it creates more integrated ideas."

Elaboration learning method by Reigeluth and Stein has used seven components of strategies, namely: (1) sequence of elaboration for the main structure of teaching, (2). Sequence of learning requirements) for each subject of learning). (3) Summarizer. (4) *Synthesizer*. (5) Analogy. (6) Cognitive strategy activator(7) Learning Control.

Using the above explanations, that organization of learning through elaboration model is a systematic conceptual framework with organized learning materials to develop students' understanding toward integrated learning.

RESEARCH PROCEDURE

Designing Process

This research is designed using the Research and Development model (R & D), that consists of: (1) product development, in this case, the learning materials in the form of module that is designed using the elaboration model, and (2) research to see the effectiveness of the developed product, whether it can increase the students' learning achievement in mathematics subject in elementary school. Hence, there are two stages of this research as follows:

1. *First Stage Research Method*
   Population, Sample, and Data Source
   a. Population

The population in this research is grade IV students of elementary school that distributed in Walea sub-district of Tojo Una Una district (9 schools) which means that there are 9 classes of grade IV students as the population of this research. Table 1 below describes the name of the schools as the population of this research with the total number of students in each school

Table 1: Recapitulation of Elementary School Of Walea Kepulauan Sub-District

No	School Name	Number of Students
1	SDN 1 Dolong A	107
2	SDN 2 Dolong A	89
3	SDN 3 Dolong A	55
4	SDN 1 Dolong B	151
5	SDN 2 Dolong B	72
6	SDN Popolii	110
7	SDN Tutung	118
8	SDN Tiga Pulau	93
9	SDN Luok	38
Total		**833**

b. Sample

The sample in this research for development of learning module with elaboration model design is two schools. These two schools are chosen based on the simple random sampling method and the selected sample schools are grade IV students of SDN 2 Dolong B that consists of 16 students and grade IV of SDN Popolii that consists of 14 students.

c. Data Source

In addition to these two classes from these two schools as samples, the data are also collected from supervisors, school principals, teachers, and school committee members, especially on things related to why there is a need to develop a module of learning that based on elaboration model. This is important considering that since 2014 most of the schools in Walea island sub-district have implemented the K-13 curriculum, in which, the learning tools uses the teacher's book and students' book.

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Design of Elaboration Model

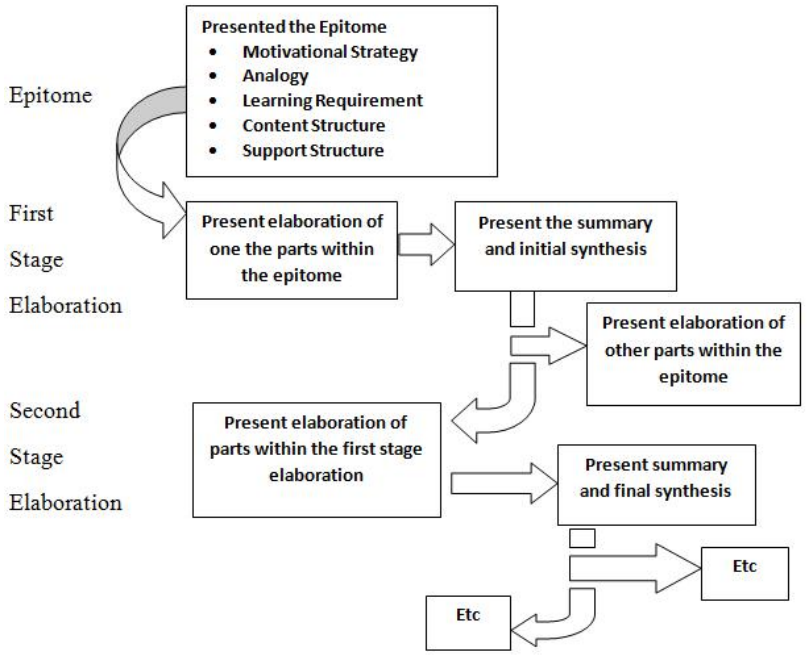

Figure 1: Procedure of Elaboration Model Charles M. Reigeluth "*Instruction Design, Theory and Models"*

From the elaboration model above, in general there are three general stages that will be done (1) Epitome, (2) First Stage Elaboration, and (3) Second Stage Elaboration.

2. *Second Stage Research Method*

Experiment Design Model to Test the Effectiveness of the Product in the Field

The core of this second stage research method is to conduct a research on the implementation of the developed module based on the elaboration model. Due to its nature to test the efficacy of the product, this method uses experiment, in which one group of the students are taught using the elaboration model, meanwhile the other group is taught using the learning material provided within the text book of K-13 curriculum.

Population and sample

The population in this research is 6 classes of grade IV students distributed in 6 schools namely: SDN 1 Dolong A, SDN 2 Dolong A, SDN 3 Dolong A, SDN 1 Dolong B, SDN 2 Dolong B, and SDN Popoli.

The sample is SDN 1 Dolong A, SDN 2 Dolong A, SDN 3 Dolong A, and SDN 1 Dolong B. SDN 1 Dolong A and SDN 2 Dolong A are groups of samples that treated with the elaboration module, where the total number of students is 24 students. Meanwhile, SDN 3 Dolong A and SDN 1 Dolong B with equal total number of students are treated using the materials presented in text book of K-13 curriculum. The distribution of sample can be seen in the following table.

Table 3: Research Population and Sample

Population		Sample	
Grade IV	**Number of Students**	**Grade IV**	**Number of Students**
SDN 1 Dolong A	11	SDN 1 Dolong A	11
SDN 1 Dolong B	13	SDN 1 Dolong B	13
SDN 2 Dolong A	12	SDN 2 Dolong A	12
SDN 3 Dolong A	12	SDN 3 Dolong A	12
SDN 2 Dolong B	16		
SDN Popoli	14		

Data Collection Method data

The data are collected using the learning achievement test, in this research, the mathematics learning achievement test.

Research Instrument of Mathematics Learning Achievement Test
Instrument to assess students' learning achievement

The test instrument used to assess students' learning achievement is objective test. This test is developed based on two approaches, rational approach and empirical approach. Rational approach is used to analyze the content validity of each test items. Meanwhile, the empirical approach is implemented through trial test to measure the validity and reliability of the test.

Empirical approach is conducted through trial. This trial is conducted on subjects that are not treated in this research. The trial is conducted on grade IV of SD Negeri 2 Dolong B and grade IV of SD Negeri Popoli on January 2016 in two elementary schools at Walea Island sub-district, district of Tojo Una Una, Sulawesi Tengah Province.

FINDINGS AND DISCUSSION

The Initial Design of the Product (Figure and Description)

The initial design of this product is made by developing the mathematics learning in grade IV that is based on the elaboration model. In general, elaboration model design consists of four aspects namely: (1) development of epitome, (2) first stage elaboration, (3) making of summary, and (4) synthesizing.

Discussion

This part of the research discusses the facts found during the hypothesis testing toward the theory used as conceptual framework in this research. This research differentiate the students' learning achievement between those taught using the learning organization based on the elaboration model and the learning based on the text book.

The advantage of learning organization strategy based on elaboration model in mathematics learning cannot be separated from the substance of elaboration theory that emphasizes on 4s *(1) selection, (2) sequencing, (3) synthesizing,* and *(4) summarizing*. *Selection* emphasizes on selection of important content of the topic such as, facts, concept, procedure or principles. Sequencing focuses on the sequence of content delivery of that subject, meanwhile, synthesizing emphasizes on creation

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of structure that can demonstrate the relationship between the contents, and summarizing emphasizes on creation of summary of short questions on the subject.

The advantage of the subject in this elaboration model cannot be found in organization of context based on text book, because there is no structure presentation in this strategy. Therefore, students that follow the organization strategy within the textbook are not able to relate the concept; hence it is possible that their knowledge will vanish from their memory. This leads to low level of learning achievement of the students.

CONCLUSION, IMPLICATION, AND RECOMMENDATION

Conclusion

1. This research uses Research and Development Method (R & D);
2. The development stage is used by designing a module of learning based on elaboration model;
3. Students' learning achievement in mathematics subject for those taught using the elaboration model is higher than of those taught using the learning organization strategy based on the mathematics textbook provided within the K-13 curriculum.

Implication

The strength of elaboration model of learning organization strategy lays on the series of learning procedure that can yield retention on students, such as (a) preparation of epitome, (b) elaborative sequence, (c) provision of synthesis, and (d) provision of summary. The findings in this research, in addition to strengthen the position of elaboration theory as one of the most effective learning strategy to increase students' learning achievement, more importantly is the implication of this research findings on learning.

This research finding implies that development of mathematics learning in school that consists of teachers' role in designing the learning, and for teaching institutions to equip the teachers' candidate with sufficient knowledge on this elaboration model.

Recommendation

Several recommendations to improve students' learning achievement are:
For elementary school teachers especially grade IV teachers to:

a. Implement the learning organization strategy using the elaboration model as one of the strategies in mathematics learning. Through this elaboration model, overall learning objectives in school can be more successful, because in addition to this strategy that can increase students' learning achievement with low spatial cognitive style characteristics, it also benefits the students to increase their retention of the subject through presentation of epitome, learning requirements, summary, synthesis, analogy, and activation of strategy. For this purposes, teacher's mental readiness in conducting preparation, providing facilities and other needed resources, as well as managing effective and efficient learning activities need to be considered.
b. During the teachers meeting (KKG and MGMP) sessions on introduction of effectively tested learning design such as the designing of elaboration learning model needs to be included.

REFERENCES

Degeng, I Nyoman Sudana. (1989). *Ilmu pengajaran taksonomi variabel*. Jakarta: Departemen Pendidikan dan Kebudayaan Direktorat Jenderal Pendidikan Tinggi Proyek pengembangan lembaga pendidikan tenaga kependidikan.

Depdiknas. (2008). *Petunjuk Penulisan Bahan Ajar*. Jakarta.

Dick, Warter and Carey Lou. (1985). *The Systematic design of instruction* 2nd *edition*. Illinols: Scott foresman and company.

Djaali, et al. (2000). *Pengukuran dalam bidang pendidikan*. Jakarta: Program Pascasarjana Universitas Negeri Jakarta.

Gagne, R. M. (1970). *The Conditions of Learning*. New York: Holt, Rinehart and Winston.

James, Popham, W. (1994). *Classroom Assesment what teachers need to know*. Boston: Allyn and Bacon.

Keller, John M. (1983). Motivasional design of instruction. In C. M. Reigeluth (Ed.), *Instructional design theories and models: An overview of their current status*. London, Hillsdale, New Jersey: Lawrence Erlbaum associates, publishers.

Reigeluth, C. M., & F.S Stein. (1983). The elaboration theory of instruction. In C. M. Reigeluth (Ed.), *Instructional Design teory and models: An overview of their current status*. Hillsdale, N.J.: Laurence Erlbaum Associates.

Reigeluth, C. M. (1983). *Instructional Design: What The Discipline is Like*. London: Laurence Erlbaum Associates, Publishers Hillsdale, New Jersey.

Reigeluth, C. M. (1983). *The Instructional-Design Theories And Models: An Overview Of Their Current Status*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers.

Robert M. Gagne. (1984). *The Conditions of Learning and theory of Instruction*. New York: Holt Rinehart and Winston.

Russel, D. M. (1990). *The instruction design environment*: Technology to support design problem solving "instructional science, ig. 121-144.

Undang Undang No. 20 Tahun 2003 tentang Sistem Pendidikan Nasional.

Uno, Hamzah B. (2011). *Model Pembelajaran*. Jakarta: Bumi Aksara.

Woolfolk, Anita E. (1997). *Educational Psychology Fith Edition*. Boston: Allyn and Bacon.

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DEVELOPMENT OF TEACHING AND LEARNING ELECTRONIC SYSTEM FOR PHYSICS LESSON

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Abstract

The purpose of this study is to develop a design for teaching and learning system electronics for physics lesson. The resulting model is that multiple representations of learning physics in the form of digital module. The material is presented in a structured learning physics from simple representation to abstract representation. Forms of representation used are video, images, data in tables, graphs, mathematical equations and analysis of the general concept is based on the representation presented. Exposure to the material presented electronically using 4 to 5 representations to explain every concept, exposure to this material can be studied students independently in space and time is not limited.

Keywords: e-learning, multiple representations, physics

INTRODUCTION

Indonesian students' cognitive abilities in the field of science are still low. Assessment PISA (Program for International Student Assessment), which is an international study that focuses on reading literacy achievement, mathematics, and science high school students 15 years old. PISA study results show that in 2012 year, ranked Indonesia could only occupy a large bottom 8 of 65 participating countries. Similarly, based on the study TIMSS (Trends in International Mathematics and Science Study) in 2011, Indonesian students only ranked 40th out of 42 countries in terms of scientific achievement (Martin et al., 2012: 146). These results indicate that in the field of science, the ability of students in Indonesia is still low in terms of: (1) understand complex information, (2) theory, analysis and problem solving, (3) use of tools, procedures and problem solving, and (4) do investigation. In studying science, students in Indonesia are not trained with various representations. Students are only given a concept in one and two representations. Giving the concept in a limited representation does not form a systematic mindset.

Learning Physics as one part of science, aimed at forming students' thinking systematically. Learning physics need to be presented in a structured way. Forms of representation that can be used in the physical sciences can take the form of verbal format, graphs, and numerical format (Tytler, 2013: 15). Physics is a field of science that requires the student to master and manage a wide variety of representations such as experiments, graphs, conceptual and verbal descriptions, formulas, pictures or diagrams curriculum focused on advanced physics modelling that is based on a framework of multi representation. (Angell et al., 2007: 2-3). Angell reason that learning physics in schools should reflect the approach that led to the search for knowledge and the introduction of product knowledge. Varied approaches must always be in learning physics. The use of multiple representations in the study can serve as a complement to the cognitive processes and information; limiting the possibility of errors in other representations as well as to encourage the learners in

order to build a deep understanding of an abstraction, expansion and relationships between concepts of matter (Ainsworth. Computer & Education Journal 33, 1999: 131-149).

So that learning can be presented in various representations, the teaching materials can be developed is electronic. Teaching and learning can digitally display various representations in reviewing each of the concepts learned. What are the forms of teaching and learning physics digitally, will be discussed in this article.

STUDY THEORY

E-learning is a form of electronic learning and teaching. E-learning according to Mark (2008, in Jethro, 2012: 2) can be defined as a learning process that is created through interaction with content, digital services are delivered based network. Support guidance E-learning is any technology mediated learning using computers either remotely or class based. The implementation of e-learning cause a shift from traditional education or training for ICT-based personal, flexible, individual, collaborative learning organized by a community of learners, teachers, facilitators, and experts. E-learning is the use of internet technology to improve knowledge and performance. E-learning technology offers students can exercise control over the content, sequence learning, learning speed, and time.

Study concept in e-learning tools that support the implementation of electronic teaching and learning can be presented in multiple representations. According to Carl Angell, et al. (2007), multiple representations is a model that is presented repeatedly a same concept in several different formats. Multiple methods of representation into learning strategy in physics. The reason given related to reflection approach that led to the search for knowledge and the introduction of product knowledge. Another reason multiple representations as varied approaches must always be in learning physics.

Representation is something that represents, describe, or symbolize an object or process. Multiple representations can be interpreted to re-serve the same concept with different formats, namely verbal forms, images, graphics, and mathematics (Prain & Waldrip, 2007). Multiple representations have three main functions, namely as a complement, barrier, and the builders of understanding (Ainsworth, 1999). The first function is to provide a representation that contain supplemental information or help completing the cognitive processes, the second function is to limit the possibility of interpretation error in using other representations, and the third is to encourage students to build in-depth understanding of the situation.

The type of representation that can be raised in the learning and teaching of physics electronically is (a) a verbal description (to give a definition of a concept); (b) drawings or diagrams or video (to visualize something abstract) with motion diagram form, free diagram objects, field line diagrams, electrical circuit diagrams, ray diagrams, state energy diagram; (c) chart (chart reading skills required) with the form of bar graph of energy and momentum bar graph; (d) mathematics (to resolve the issue of quantitative) in the form of formulas or mathematical equations.

Multiple representations can be done in the process of learning and assessment process. Here are the steps taken in the use of multiple representations in the learning process: (a) identify the key concepts to think about the extent to which

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the benefits of representations presented for students; (b) construct another example verbal representations, images, graphics, and mathematical equations.

Students can benefit from learning with more than one representation (Chi-Yan Tsui, 2013, 4). Various studies on learning with Multiple Representations gives many examples of learning with multiple representations in computational science, mathematics, physics, chemistry, economic, and clinical medicine (van Someren et al., 1998). Learners tend to benefit when the information is presented in more than one representation. It is because of specific information can best be delivered in a certain representation, some representations can be more useful in displaying a variety of information and problem-solving skills depending on the repertoire trouble shooter for multiple representations of the same domain (de Jong et al., 1998). Furthermore, the particular sequence of learning materials that are beneficial to the learning process as discussed in the chapters in the van Someren book's (1998)

Electronic teaching and learning that promote independent learning should be presented in a structured way with a variety of representations. Humans have separate channels for processing visual and verbal representations also become an important theoretical basis for using both verbal and visual representations to support learning (Chi-Yan Tsui, 2013, 4). Assessment of learning materials physics presented with multiple representations of the concept of e-learning will help students understand the concepts learned.

RESEARCH METHODOLOGY

The method used is the research and development of the model of Dick and Carey. The only study to develop a model of learning, so it is only implemented to the extent the formative evaluation of the model of Dick and Carey.

RESULTS AND DISCUSSION

Teaching and learning system produced packaged in the form of digital modules. Teaching and learning system has the advantage characteristics are as follows:

1. The digital module of physics is stored in EXE format and/or HTML. The module can be operated using a computer or laptop. Modules can be copied without installing other software and compatible on all computers/laptops with the minimum requirement of the operating system is Windows 7;
2. The digital module of physics can be used by students for independent study and learning in the classroom;
3. The learning objectives are clearly defined and communicated to the learners so that learners can be directed to use the module as a medium of self-learning to find the concept of the material presented on the contents of the module;
4. The module also provides a comprehension test device packaged in a formative test end learning activities, a matter of a final evaluation module, and the game is connected to the Internet (online). If learners operate the module online, then the answer learners will be sent automatically to the email educators, so that educators can monitor the activities of their students in the use of the module;
5. Once the learners do the questions on the test evaluation formative or about the end of the module, the module will display the program review the answers and the score obtained;

6. The video displayed is added to the text, instructions or directions in audio, and other descriptions that lead learners in the stimulation phase;
7. Animation shown is added with the text as audio information and explanations which help learners to gather information at the stage of data collection and/or data procession;
8. Display-display videos, animations, simulations, and the image on the module content is presented in the context of everyday life taken from the footage, allowing learners to better understand the usefulness of studying physics in everyday life and motivated to do the activity observed. In addition, the contents are helping learners to illustrate an event.

CONCLUSION

Teaching and learning of physics can be developed in the form of digital learning (e-learning). Learning physics in the e-learning system is presented in multiple representations to guide students in understanding physics concepts learned. Learning software developers must choose an appropriate representation and support in discussions about concepts learned. Assessment of learning materials physics presented with multiple representations of the concept of e-learning will help students understand the concepts studied independently.

REFERENCES

Ainsworth, S. (2008*).* The educational value of multiple-representations when learning complex scientific concepts. In J. K. Gilbert, M. Reiner, & M. Nakhleh (Eds.), *Visualization: Theory and practice in science education* (pp. 191–208). London: Springer.

Angell, C., O.Guttersrud., E.K.Henriksen. (2007). *Multiple Representations as a Framework for a Modelling Approach to Physics Education.* UK: Durham University

de Jong, T., Ainsworth, S. E., Dobson, M., van der Hulst, A., Levonen, J., Reimann, P., et al. (1998). Acquiring knowledge in science and mathematics: The use of multiple representations in technology-based learning environments. In M. W. van Someren, P. Reimann, H. P. A. Boshuizen, & T. de Jong (Eds.), *Learning with multiple representations* (pp. 9–40). London: Elsevier Science.

Martin, M.O., I. V. S. Mullis., P. Foy., and G. M. Stanco. 2012. *TIMSS (Trends in International Mathematics and Science Study): TIMSS 2011 International Result in Science.* Amsterdam: TIMSS & PIRLS International Study Center

Jethro, Olojo Oludare, et al. (2012). E-Learning and Its Effects in Teaching and Learning in a Global Age. *International Journal of Academic Research in Business and Social Sciences: Vol. 2, No 1* (pp. 203-210).

Tytler, R., V. Prain., P. Hubber., and B. Waldrip (*Eds.*). (2013). *Constructing Representations to Learn in Science*. Netherlands: Sense Publisher.

Tsui, Chi-Yan, et al. (2013). *Introduction to Multiple Representations: Their Importance in Biology* and Biological Education, Models and Modeling in Science Education 7: Multiple Representations in Biological Education, Springer Dordrecht Heidelberg.

van Someren, M. W., Reimann, P., Boshuizen, H. P. A., & de Jong, T. (Eds.). (1998). *Learning with multiple representations.* London: Pergamon.

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MODEL OF MANAGEMENT DEVELOPMENT E-LEARNING IN VOCATIONAL COLLEGES

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Abstract

Major changes resulting from the development of Information and Communication Technology spur educational institutions in Indonesia. Changes conventional learning models began to be combined with model-based e-learning. The implementation of e-learning model can not be done instantly. Need to develop a management model of comprehensive e-learning so as to improve the quality or the quality of learning outcomes of students. In developing a management model of e-learning it is necessary to note three important elements that support the effectiveness and efficiency of management development e-learning universities, namely: 1) the ability of the institution, 2) the ability of lecturers and 3) the ability of learners. The ability of institutions include: a) support the policy of the Board of university leaders in the implementation of e-learning system in the form of diverse programs and activities, supporting human wellbeing and development of e-learning systems in higher education; b) Readiness supporting infrastructure for the management of e-learning in higher education; c) human resource development system supporting the management of e-learning in higher education; d) Financing e-learning system; e) control system in the process of learning to use e-learning in higher education. Lecturer capabilities include: a) understanding of the college lecturer on e-learning technologies; b) Readiness college lecturer in terms of preparing the course material into the e-learning system. Ability of Students include: a) Understanding college students about e-learning technology that includes learning on-line, internet and Distance Learning; b) Readiness college students in terms of accepting the course material via e-learning.

Keywords: e-learning, management, higher education, vocational

INTRODUCTION

The development of Information and Communication Technology (ICT) affect major changes in various fields, including education in Indonesia. One area that is getting a significant impact in the development of this technology is the field of education, which is basically education is a process of communication and information from educators to students containing information education, which has elements of educators as a source of information, media as a means of presenting ideas, ideas and educational materials as well as the learners themselves (Oetomo and Priyogutomo, 2004), some parts of this element is to get a touch on information technology media, that sparked the birth of the idea of e-learning (Utomo, 2001). The process of learning to use e-learning has the advantage of overcoming differences in distance, time and space.

Scenario teaching and learning need to be prepared carefully in a learning curriculum that was designed based on the internet. Implement an internet-based learning does not mean just putting the teaching materials on the web. In addition to teaching materials, learning scenarios need to be prepared and to invite the involvement of learners actively and constructively in their learning process.

New technologies, especially in the field of ICT have an increasingly important role in learning. Many people believe that multimedia will be able to bring us to the learning situation in which "learning with effort" will be replaced with "learning with fun". Especially in adult learning, learning with effort into something quite difficult to be implemented due to various limiting factors such as age, ability to capture power, willingness to try, etc. So the learning process a fun, creative, not bores the choice of the facilitator. If this kind of learning situation is not created, at least in multimedia can make learning more effective in the opinion of some teachers. At this time we all understand that "learning" is seen as a process that is active and participatory, constructive, cumulative and goal-oriented learning, both General Instructional Objectives (TIU) and Special Instructional Objectives (ICT).

In connection with the above, the universities need to develop models of management development of e-learning as a frame of reference. Thus the development of e-learning model will be more focused and systematic, so as to produce a draft Comprehensive e-learning to improve the quality of learning outcomes of students.

LITERATURE REVIEW

Education Management

Administration of education is one part of the education system that has a very important position in the administration of education in order to implement management functions within an organization to achieve these goals. Administration is a comprehensive process, consisting of a variety of related activities and sustainable. There are experts who say the same between educational administration and management education, but some say different between the two. Mohammad Gaffar Fakry in Yahya (2003: 34) gives an overview of the position of the administration and management in the context of education is generally made up of components that are directly part of the educational process. These components include: teachers, employees, learning resources, facilities, curriculum, costs, supervision, leadership, evaluation system, parents and management. The picture of the position of management in the context of general education as shown Figure 1.

Administration is the whole process by which human sources and material from which are made available and effective for the achievement of the purposes of the organization efficiently (Sutisna, 1989: 19). Meanwhile, Schermerhorn, Jr., (1997: 4) defines management is the process of planning, organizing, directing, and controlling the use of resources to achieve the goal. Management education is a science which studies how to organize resources to achieve the goals that have been set in a productive and how to create a good atmosphere for people who participate in achieving the mutually agreed objectives (Engkoswara, 2001: 2).

E-Learning

E-learning stands for electronic learning is a term popular in on-line learning internet and intranet-based. E-learning technology is a technology that is bridged by the Internet technology, requires a medium in order to view the course materials and questions and also requires communication facilities in order to exchange information between the participants and faculty. Various opinions expressed in order to define the e-learning appropriately. There are some terms that need to be explained in order

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to get full understanding about the area of e-Learning. Another term that includes distance learning, distance education, tele-learning, on-line learning and e-training.

E-learning itself is one form of the concept of Distance Learning. The form of e-learning itself is quite broad; a portal that contains information science has to be said as e-learning. E learning or Internet enabled learning combines teaching methods and technology as a means in learning. E-learning is a learning process effectively generated by combining the digital delivery of content consisting of support and service learning (Barbara, S., Wagner P., et al., 2008: 4). Additionally, Seok (2008: 5) states that e-learning is a new form of pedagogy for learning in the 21st century. E-Teachers are e-learning instructional designers, facilitator of interaction, and subject matter experts'. Fernando Alonso et al. (2008: 389) says that Learning management systems (LMS) and e-learning platforms are dedicated software tools intended to offer a virtual educational and/or on-line training environment.

The definition of e-learning is a learning process effectively generated by combining the digital delivery of content consisting of support and service learning (Barbara, S., Wagner P., et al., 2008: 397). Thompson, Ganxglass and Simon (Simamora, 2003: 351) defines that e-learning is a learning experience delivered via electronic technology. Another definition of e-learning delivered by Dodd (2002: 286) is a learning activity through electronic devices computer connected to the internet. Clark and Mayer (2003: 11) defines e-learning as training delivered on a computer (including CD-ROM, the Internet, or Intranet) that is designed to support individual learning goals or organizational performance.

Khoe Yao Tung (2000) says that after the presence of lecturers in the truest sense, the Internet will be a supplement and complement to making teacher representatives that represent an important source of learning in the world. Cisco (2001) describes the philosophical e learning as follows. First, e-learning is the delivery of information, communication, education, training, on-line. Second, e-learning provides a set of tools that can enhance the value of learning in conventional (model conventional learning, the study on textbooks, CD-ROMs, and computer-based training) so as to address challenges of increased globalization.

Thirdly, e-learning does not mean replacing the conventional model of learning in the classroom, but reinforce the learning model through the enrichment of content and the development of educational technology. Fourth, the capacity of students varies greatly depending on the form of content and method of delivery. The better the alignment between content and tools with a transmitter of learning styles, so it is better student capacity, which in turn will give better results.

Meanwhile Onno W. Purbo (2002) requires three things that must be fulfilled in designing e-learning, namely: simple, personal, and fast. Simple systems will facilitate students in using technology and the existing menu, with ease on the panel is provided, will reduce the introduction of e-learning system itself, so that the learning time participants can be made efficient for the learning process itself and not on learning to use the system e his-learning. Terms of personal means teachers can interact with both like a teacher communicates with students in class. With the approach and more personal interaction, learners note their progress, and assisted all the problems that it faces. This will make students comfortable to linger in front of his computer screen. Then the service is supported with fast, quick response to

complaints and needs of other learners. Thus the improvement of learning can be done as soon as possible by a teacher or administrator.

Functions and Benefits of E-Learning

There are three (3) electronic learning function of the learning activities in the classroom (classroom instruction), namely as a supplement to its choice/optional, complementary (complement), or a replacement (substitution) (Siahaan, 2002).

Supplement. Is said to serve as a supplemental (extra), if the students have the freedom to choose whether to take advantage of electronic learning materials or not. In this case, there is no obligation/necessity for student to access electronic learning materials. Even is optional, students who use it will certainly have additional knowledge or insight.

Complement (additional). Is said to serve as a complement (complement) when the programmed electronic learning materials to complement the learning material that students receive in the classroom (Lewis, 2002). As a complementary means of electronic learning material is programmed to be a reinforcement material (enrichment) or remedial for learners in following conventional learning activities. Said electronic learning materials as enrichment, if the learners can quickly master/understand the subject matter presented teacher face to face (fast learners) are given the opportunity to access electronic learning material that was specifically developed for them. The goal is that further strengthen the level of mastery of the subject matter learners who served as a teacher in classroom, Give a remedial program, where the students that difficulty understanding the subject matter presented by the teacher in the classroom (slow learners) are given the opportunity to take advantage of electronic learning materials that was specifically designed for them.

The goal is to make the students more and more easily understand the subject matter presented in the classroom teacher.

Substitution (replacement). Several universities in developed countries provide some alternative model of learning activities/lectures to the studdent. The goal so that students can flexibly manage lecture activities in accordance with the time and other activities of daily student.

There are three alternative models of learning activities that can be selected learners, namely: (1) fully face-to-face (conventional), (2) partially face-to-face and partly via the internet, or even (3) entirely over the internet.

Any alternative learning models that will have students do not become a problem in the assessment. Because all three models presenting material get the recognition or the same assessment. If the student can complete the lecture program and pass through conventional means or entirely over the internet, or even through a combination of these two models, the education provider institutions will provide recognition that same. The situation is very flexible assessed is helping students to accelerate the completion of the lecture.

The benefits of learning Electronic Learning

According to AW Bates (Bates, 1995) and K. Wulf (Wulf, 1996) Learning the benefits of electronic learning (e-Learning) that consists of four things: a) Increasing levels of learning interaction between learners and teachers or instructors (Enhance interactivity). b) Allows the interaction of learning where and anytime (time and place flexibility). c) Reach learners in coverage (potential to reach global

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audience). d) Easing refinement and storage of instructional materials (easy updating of content as well as achievable capabilities).

DISCUSSION

One of the utilization of ICT is the use *of e-learning* in the learning process. In the use of *e-learning* to the learning management needs a Comprehensive *e-learning* for the purpose of the learning process is reached.

Analysis E-learning Management Development in Higher Education Vocational Education

To develop a management model *of e-learning* in vocational colleges need to know three important elements that support the effectiveness and efficiency of the management *of e-learning* universities, namely: 1) the ability of the institution, 2) the ability of lecturers and 3) the ability of learners.

Institutional capabilities include: Support the policy of the Board of university leaders in the implementation of *e-learning* system in the form of diverse programs and activities, supporting human wellbeing and development of *e-learning* systems in higher education; Readiness of the infrastructure supporting the management *of e-learning* in college consisting of: readiness *hardware:* Computer *server* and *client, LAN, WAN, Switch, Wi-Fi, Bandwidth,* readiness of *software:* system software and application software, readiness *brain ware:* systems analysis, manager *database,* network specialists, *programmers,* and operators; Human resource development system supporting the management *of e-learning* in college consisting of: coaching faculty, students and human resource development are directly related to the technical operations *of e-learning system:* administrators, *database* managers, network specialists, *programmers,* and technicians in universities; Financing *e-learning* system comprising: the preparation of the budget plan, the allocation and distribution, the actual use, accountability and supervision of the system of financing the use of *e-learning* in higher education; The control systems in the process of learning to use *e-learning* in higher education by admin, faculty and Board Chairman college.

Lecturer capabilities include: Understanding college lecturer on *e-learning* technology that includes learning *on-line*, internet and *Learning Management System;* Readiness of university lecturers in terms of preparing the course material into the *e-learning system,* private facilities (laptop and an Internet connection) to support study with *e-learning* and operational capabilities *(upload* material, *on-line* discussions, quizzes, UTS, UAS, giving comment) in making use of *e-learning* colleges.

Ability of Students include: Understanding college students about *e-learning* technology that includes learning *on-line,* internet and *Distance Learning;* Readiness college students in terms of accepting the course material via *e-learning,* private facilities (laptop and rental internet) to support the learning process with *e-learning* and operational capability *(download* the material, *on-line* discussions, quizzes, answering exam, ask *on-line)* in the use of *e-learning.*

Model Management E-learning in Higher Education Vocational that can be developed

Development management model *of e-learning* in higher education begins with identifying the goal of developing E-learning refers to the vision, mission,

purpose institutions, strategic planning, and policies of other institutions. SWOT analysis is then performed. *E-learning* management model is a mechanism that could empower management elements *of e-learning* in the process of development of e-learning-based learning to achieve the goals set. This management model *of e-learning* in vocational colleges developed a hypothetical model formulation *of e-learning* management Comprehensive universities. Formulation development model is based on theories, analysis of the results of research and research results relevant past. This model formulation builds upon the elements that support the effectiveness and efficiency of the management *of e-learning.* The results of the formulation in the form of a concept model of management development Comprehensive *e-learning* in vocational colleges and, hopefully useful for other universities.

To avoid misunderstanding, misinterpretation, and errors in understanding, it is necessary to be disclosed some of the following assumptions. In the Law of the Republic of Indonesia No.11 of 2008 on information and electronic transactions Article 1, paragraph 3 that the intended load of information technology is a technique to collect, prepare, store, process, publish, analyze, and/or disseminate information.

Thompson, Ganxglass and Simon (Simamora, 2003: 351) defines that *e-learning* is a learning experience delivered via electronic technology. Another definition of *e-learning* delivered by Dodd (2002: 286) is a learning activity through electronic devices computer connected to the internet. Based on the definition *of e-learning,* it can be concluded that *e-learning* is the process of *on-line* learning using *ICT.* System *e-learning* is built with the elements together to build information technology or computer. With elements of the *e-learning* system can run well so that it can support the learning process. Additionally, Onong Uchjana Effendi, (1989) distinguishes three basic elements in computer-based management information systems, namely: 1) *Hardware* (hardware), 2) *Software* (software), and 3) *Brainware* (personnel). Thus, it can be assumed that the ingredients to support *e-learning* are the parts that build *e-learning* system consisting of *hardware, software* and *brain-ware.*

Learning management is the process of structuring learning activities by involving all components of education in order to achieve teaching objectives Comprehensive (Cassette, 1996: 48). Based on these definitions, the management of *e-learning* is the process of structuring *on-line* learning using *ICT* and involves all components of education in order to achieve teaching objectives Comprehensive.

This model is expected as a solution to the problems of management development *of e-learning* in higher education. Explanation of development model management Comprehensive *e-learning* in higher education is based on the elements that support the effectiveness and efficiency of the management *of e-learning.* The steps in clarifying the model are:

First, identify the goal of developing e-learning; this is done to focus the direction of development so as not to deviate from the vision, mission and goals of the institution, including the strategic plan of the institution that has been planned.

Second, an analysis of the institutional capacity, the ability of faculty and the ability of learners to developments that will be done using the SWOT method to determine the strengths, weaknesses, opportunities and challenges of *e-learning* management elements as described above.

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Third, after knowing the strengths, weaknesses, opportunities and challenges of each element and then formulate the problem based on the analysis of SWOT method.

Fourthly, after formulating the problem of each of the elements and formulate strategies to optimize weaknesses possessed by the results of SWOT analysis method. So that with each of these strategies management elements *of e-learning* can run well.

Fifth, m develops *e-learning* strategy. The development is based on the analysis of strengths, opportunities and actions to obtain quality results.

Sixth, develop and define teaching materials for learning to use *e-learning* based learning strategies that have been formulated previously.

Seventh, does a formative evaluation of the design of *e-learning* that has been made, the evaluation can be performed using *one-to-one* or *small-group.*

Eighth, implementation or application of e-learning in the real world. To perform the application makes sure that the results of the evaluation have shown that the system is feasible to implement.

CONCLUSION

Based on the results of the discussion is based on the concept and theory, it can be concluded elements to measure the effectiveness and efficiency of the management *of e-learning* as follows. The vision and mission of higher education as outlined in the strategic plan forms colleges and spelled out in the strategic policy college. College lecturer understanding of *e-learning* technologies covering understanding of learning *on-line,* internet and *Learning Management System.* College student understanding of *e-learning* technology includes an understanding of learning *on-line,* internet and *Distance Learning.* Readiness of university lecturers to learning with using *e-learning* system in terms of preparing the course material into *e-learning system,* private facilities (laptop and an Internet connection) to support the learning process with *e-learning* outside the campus and operational capability *(upload* material, *on-line* discussions, quizzes, exam, leave a comment) in the use of *e-learning.* Readiness of college students to the learning process with using *e-learning* system in terms of accepting the course material via *e-learning,* the ability to utilize the facilities provided college to support the learning process with *e-learning* and ability operational *(download* the material, *on-line* discussions, quizzes, answering exam answer, ask *on-line)* in the use of *e-learning.* The readiness of *e-learning* system infrastructure consists of: *hardware readiness:* Development of *server* and *client computers, LAN, WAN, Switch, Wi-Fi,* and *Bandwidth;* the readiness of *software:* system software development and application software; readiness *brain ware* comprising: Manager data processing, systems analysts, *Programmers,* watchdog group, Specialist network, *Machine operators,* business *databases,* and data providers. Human resource development systems supporting *e-learning* system comprising: coaching lecturers, students and human resource development are directly related with technical operational system of *e-learning* at the faculty *level:* Administrator, business *Databases,* System Analysis, Network Specialist, *Programmer,* Operator, Data Providers and Technicians especially in colleges high. Financing *e-learning* system which includes the preparation of the budget plan, allocation and distribution, the actual use, accountability, financing and supervision

of the use of *e-learning* system especially in college. Control system to the learning process using *e-learning* system conducted by admin *e-learning*, faculty and university leaders high.

REFERENCES

Alami, M.E, Casel, N., and Zampunieris, D. (2007). An architecture for e-learning system with computational intelligence. *International journal on e-learning.*

Alonso, F., Lopez J., at al. (2008). Learning objects, learning objectives, learning design. *Innovation in education and teaching International.*

Allen, Mark. (2002). *The corporate university: designing, managing, and growing a successful program.* New York: AMACOM.

Barbara, S., Wagner P., at all (2008). Vienna E-Lecturing (VEL): learning how to learn selft-regulated in an internet-based blanded learning setting. *International journal on e-learning.*

Clark, R. C. & Mayer, R. E. (2003). *E-learning and the science of instruction.* San Francisco: Jossey –Bass/Pfeiffer.

Engkoswara. (1987) *Dasar-dasar administrasi pendidikan.* Jakarta: P2LPTK Jakarta

_____. (2001). *Paradigma Manajemen Pendidikan Menyongsosng Otonomi Daerah*, Yayasan amal keluarga.

Fattah, Nanang. (1999). *Landasan manajemen pendidikan.* Bandung: Remaja Rosda Karya.

Gaffar, Muhammad Fakry. (1984). *Perencanaan Pendidikan: Teori dan Metodologi*. Jakarta: Dirjen Depdiknas.

_____. (1998). *Administrasi Pendidikan*. Mimbar Pendidikan No.2 Tahun XVII April 1998.

_____. (2008). *Profesionalism Manajemen Perguruan Tinggi pada Era Global*. Makalah Disampaikan Pada Seminar Nasional Manajemen Pendidikan Kerjasama UNJ dan ISMaPI. Jakarta: Pengurus Pusat ISMaPI.

Schermerhorn, John R., Jr. (2001). *Management.* (Translated By M. Purnama Putranto) Yogyakarta: ANDI Yogyakarta.

Seok, S. (2008). Teaching Aspect on *e-learning*. *International journal on elearning.*

Simamora, L. (2003). *E-learning:* Konsep dan Perkembangan Teknologi yang Mendukungnya.*Cakrawala Pendidikan, E-learning dalam Pendidikan.* Jakarta: Universitas Terbuka.

Sutisna, O. (1983) *Administrasi Pendidikan: Dasar Teoritis untuk Praktek Profesional*. Bandung. Angkasa.

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ELECTRONIC & MOBILE LEARNING IN PRACTICE PROGRAM: DEVELOPMENT AND ADVANCED

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Abstract

Development/advancement of information and communication technology very rapidly and expanded to around the world has been used by many countries, institutions and experts for various purposes including for education/learning. E-learning and m-learning is an innovation and a new sensation in education. Development of the distance learning namely e-learning and m-learning experienced a remarkable progress, along with the development of communications equipment progress of both hardware and software. The implementation of e-learning and m-learning in the various disciplines in the future will be more open.

Keywords: e-learning, m-learning, e & m learning development

INTRODUCTION

Development/advancement in internet technology very rapidly and penetrated into around the world has been used by many countries, institutions and experts for various purposes including for education/learning (Rusman, 2014: 342).

According to M. Atwi Supaman (2015: 274), the development of communication technology hardware such as distance conferencing equipment, satellites, computers, internet and increasingly sophisticated video recorder and more affordable price has prompted the courage of education managers to use system LDL (Long Distance Learning) more. Public confidence in the ability of remote communication technologies proliferate in a reciprocal channel messages between the sender and the recipient of the message.

Today information technology through the Internet is more widely used. All information exists and is available on the Internet and can be accessed by anyone with a simple, flexible, fast and accurate. Use of Internet technology in learning need to be created as one of the innovations in the use of instructional media and learning resources. Various forms of application and the facilities available on the Internet can be fully utilized to improve the quality and the quality of learning. It also can facilitate learning activities if viewed from the aspect of media use. In line with the emerging computer-based learning (computer based instruction), namely learning through electronic media and is currently developing mobile learning.

According to Jaya Kumar C Koran in Rusman (2014: 346), e-learning is learning which uses electronic circuits (LAN, WAN or Internet) to deliver learning content, interaction or guidance. There also interpret e-learning as a form of distance education is done via the internet. Through e-learning allows the learner to learn through computers in their respective places without having to physically go to follow the lessons/lectures in class. The interaction can be run on-line and real-time or off-line or archieved.

Mobile learning (Sharples, 2014: 2) represents a new paradigm in learning. This model appears to respond to the development of information and communication

technology, especially information technology and mobile communication, which very rapidly in recent years. Mobile learning application is still in development stage and assessed by experts, not so well established, however, m-learning is expected to be rapid enough in the short term.

Mobile learning (m-learning) refers to the use of information technology (IT) and mobile handheld, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning. Mobile Learning (m-learning) is part of the electronic learning (e-learning) so that, by itself, is also part of the distance learning (d-learning).

From the description of introduction above, can be elaborated how the progress and the development of electronic learning (e-learning) and mobile learning (m –learning)

LITERATURE REVIEW

Development and Advanced E & M Learning

Development of e-Learning Model

The essence of e-learning is the process of learning to use electronic media, such as digital multimedia (Prawiradilaga, 2014: 277). Horton (Prawiradilaga, 2014: 277) defines e-learning is learning to use information and information technology to create a learning experience. Furthermore Holmes and Gardner in Prawiradilaga, defines e-learning is the online access to learning resources, anytime, anywhere within the framework of the learning experience.

Haughey opinion (Rusman, 2014: 350) regarding the development of e-learning is that there are three (3) the possibility of the development of internet-based learning system, the web course, web-centric and web-enhanced golf course.

- Web course is the use of the Internet for educational purposes, in which students and faculty are completely separated and no need for face-to-face. The entire teaching materials, discussion, consultation, assignments, exercises, tests, and other learning activities entirely delivered over the internet. In other words, this model uses the long distance system.
- Web centric course is the use of the Internet that combines distance learning and face-to-face (conventional). Most of the material is delivered via the internet and partly through face to face. Its function is complementary. In this model, the lecturer can provide clues to the students to learn the lecture material through the web that has been made. Students are also given a referral to seek other sources of relevant websites. In face-to-face, students and professors more discussion of the findings of material that has been learned through the internet.
- Web enhanced course is the use of the internet to support the quality of learning done in class. Internet functions are to provide enrichment and communication between students and lecturers, fellow students, members of the group, or students with other resource persons. Therefore, the role of the faculty in this case required to master the technique of searching for information on the internet, guiding students search for and find websites that are relevant to the substance of lectures, presenting the material through a web an attractive and desirable, airport guidance and communication via the internet and the skill of other required.

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The case study e-learning model, a collaboration of English teachers and students at a primary school on the island of Turku, Finland, hereinafter included to remote students namely in Germany. The purpose of this innovation is to provide equal opportunities for students in remote villages and students in the city to learn a foreign language. E-learning model designed without the physical presence of teachers at the same grade, but students in Germany learning via NetMeeting and Virtual Notebook. Exercises are developed with teachers remotely including individual and group assignments. The result was the student role in the learning did not differ between the classes remotely with conventional class (Law 2011: 65)

The next case study, namely e-learning at the University of Maribor in nursing science studies that develop ICT and the tendency of modern education to support nursing education with ICT-based methods of nursing education. Distance education model practiced with the aim of teaching the basic principles and theories of a specific field of nursing. Lectures were presented with a variety of multimedia techniques. The result after the introduction of e-learning are quantitatively obtained: 1) improve the quality of the educational process, 2) improve the presentation of the problems of nursing, 3) students better preparation in materials theory to clinical practice, 4) improve the possibilities for the use of multidisciplinary, 5) increase creativity, motivation and quality of work of students in nursing, 6) expand search for course material without hampered by time and place, and 7) improving the ability of students to analyze, synthesis and critical thinking (Kokol, 2014: 2).

Development of m-Learning Model

Today's mobile devices such as smart mobile phones and tablet computers are affordable and widely used not only in the private domain, but also in business applications and education. The use of these devices for mobile learning allows to access educational materials limited spatial and temporal (Alejandro, 2016: 6).

The technical features of the powerful mobile technology and mobile application available supported by social media and computing enables new forms of basic learning that can serve contemporary pedagogy in a variety of educational contexts (Churchill, 2016: 1). Mobile learning has been designed in accordance with the three paradigms: learning with media technology, learners moving and dynamic experience (Churchill, 2016: 2)

Some of the important capabilities that should be provided by the learning device m-learning are the ability to connect to other equipment (especially computers), ability to present information learning and the ability to realize the bilateral communication between teachers and learners. M-learning is a unique learning because learners can access learning materials, referrals and applications relating to learning, anytime and anywhere.

In the use of mobile devices in the classroom, so that the effective integration of mobile learning occurs in a digital classroom environment, it is important for all students to have their own devices equipped with wireless communication capabilities to perform learning tasks. (McQuiggan, 2015: 54). The growing trend of more and more mobile devices available in the class and its appeal as well as the importance of cooperative and collaborative peer learning, mobile learning cooperative in the classroom is very significant to the future (McQuiggan, 2015: 55).

Mobile learning is an educational activity that is only if the technology is used all mobile and if technology is also mobile users while they are learning. (M. El-Hussein, 2010: 14). The three concepts of mobile learning technologies include mobility, learning mobility, and mobility of the learners (M. El-Hussein, 2010: 17). Mobile learning (m-learning) is a clever learning using computing equipment that is small and easy to carry. The equipment which includes smart phones (smart phones), PDA and other similar equipment. Mobile learning refers to mobile and wireless devices that are useful for learning the moves. Usually the equipment used are mobile phones, smart phones, palmtop computers and devices such as tablet PCs, laptops and media players individual (Behera, 2013: 24).

The characteristics of mobile learning include: 1) Accessibility: information can always be obtained whenever learners need them, 2) immediacy: the information can be obtained immediately by learners, 3) interactivity: the learner can interact with her peers, with teachers and experts to effectively and efficient through different media, 4) awareness of the atmosphere: the environmental learning in real situations to provide sufficient information to the learner, 5) is permanent, 6) of flexible learning, 7) can be used anywhere and anytime, 8) most tools used cheaper than desktop PCs, 9) the same size and even lighter than a desktop PC, 10) surely could accommodate the number of learners, many based on modern technology, m-learning can be used in life every day (Behera, 2013: 26).

The optimal system is combining m-Learning e-Learning, where there is an alternative learning process is done with computers and/or mobile devices or combined with traditional systems. Another thing to consider in the development of m-Learning is that not all conventional learning content and learning content e-Learning will be transformed into m-Learning content. The development of mobile learning a new discourse that still need to be explored and studied further so that later can be generated mobile based learning model is effective, cheap and affordable.

One example, the application of mobile learning has been developed by Methyl LAB (Mixed Emerging Technology Integration Lab) at the Institute for Simulation and Training at the University of Central Florida as the center of world progress in developing demonstration and use interactive and virtual systems to the operational environment simulation and training personnel will use equipment and special systems. METIL produce mobile learning applications and provides research and development of mobile learning for public, private, and social areas (Keskin, 2011: 202).

Studies conducted by Aadil Askar (2014: 7) about Interactive E-books as a Tool of Mobile Learning for Digital-Native in Higher Education: Interactivity, Preferences, and Ownership, obtained results related to devices owned by students and their use showed that 100% of students using a smart device that is utilized for social media such as Twitter, Facebook and Whatsapp and 88.6% of students using Android and IOS on smart devices as a basic e-learning. Furthermore, 100% of students can access them easily on public and private internet and 94.8% of students have personal internet service. For interactive e-book, 93% of students to search information in the e-book in support m-learning.

Studies conducted by Nopita Setiawati et al (2014: 178) regarding the development of Mobile Learning (m-learning) based Moodle as Carrying Capacity of

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Learning Physics in high school, the result 1) learning media mobile learning to use the software Moodle contains material fluid static for high school students can be accessed online via mobile phones, 2) quality mobile learning has been developed very well categorized based on an assessment of media experts with a percentage of 90.62% of the ideal score, subject matter experts 80.55% of the votes while the ideal score of 90.83% of physics teachers of the ideal score, 3) based on small-scale field trial obtained by the students' response 'strongly agree' amounted to 83.67%, while field trials on a large scale was obtained 91.08% of the ideal score.

CONCLUSION

E-learning and M-learning is a learning model that promises future today and tomorrow, with a variety of approaches, theories and practice. Moreover, the development and advancement of computer technology, communication devices, network technology is rapidly increasing, so that the development model of e-learning and m-learning so more easily. E-learning and m-learning is very useful to enrich the learning experience, besides that it is also through learning like this, the future becomes more mobile, more flexible and certainly more interesting both good teachers/lecturers as well as for learners. Progress and development of e-learning and m-learning in various disciplines have begun to do and in the future will be much more.

REFERENCES

Alejandro, Pena-Ayala. (2016). *Mobile, Ubiquitous, and Pervasive Learning Fundamentals, Applications and Trends.* Switzerland: Springer International Publishing.

Askar, Andil. (2014). Interactive Ebooks as a Tool of Mobile Learning for Digital-Natives in Higher Education: Interactivity, Preferences, and Ownership. *Annual Proceedings-Jacksonville Florida: Vol. 1* On the Practice of Educational Communication and Technology.

Churchill, D., Lu, J., Chiu, Th.K.F., Fox, B. (2016). *Mobile Learning Design Theories and Application.* Singapore: Springer Science & Business Media.

Keskin, Nilgun Ozdamar and David Metcalf. (2011). The Current Perspectives, Theories and Practices of Mobile Learning. *The Turkish Online Journal of Education Technology: Vol. 10, Issue 2.*

Kokol, Peter, Helena Blazua etal. (2014). *E-Learning in Nursing Education– Challenge and Opportunities.* Slovenia: University of Maribor & School of Nursing John Hopkins University.

Law, Nancy, Allan Yuen and Robert Fox. (2011). *Educational Innovations Beyond Technology, Nurturing Leadeship and Establishing Learning Organizations*. New York: Springer.

M.El-Hussein, Mohamed Osman and Johannes C. Cronje. (2010). Defining Mobile Learning in the Higher Education Landscape. *Educational Technology & Society: Vol. 13, No. 3* (pp. 12 – 21).

McQuiggan, Scott, Lucy Kosturko, Jamie McQuiggan and Jennifer Sabourin. (2015). *Mobile Learning: A Handbook for Developers, Educators and Learners.* Hoboken, New Jersey: John Wiley and Sons, Inc.

Prawiradilaga, Dewi Salma. (2014). *Wawasan Teknologi Pendidikan, cetakan ke-2.* Jakarta: Kencana Prenada Media Group.

Rusman. (2014). *Model-Model Pembelajaran Mengembangkan Profesionalisme Guru, edisi kedua*. Jakarta: Raja Grafindo Persada.

Setiawati, Nopita, Ika Kartika dan Joko Purwanto. (2014). *Pengembangan Mobile Learning (m-learning) Berbasis Moodle Sebagai Daya Dukung Pembelajaran Fisika di SMA.* Yogyakarta: Prodi Pendidikan Fisika UIN Sunan Kalijaga.

Sharples, Mike, Inmaculada Arnedillo Sanchez, etal. (2014). *Mobile Learning Small Devices and Big Issues.* Retrieved from http://www.bbc.co.uk/schools/gcsebitesize/mobile/.

Suparman, M. Atwi. (2014). *Teknologi Pendidikan Dalam Pendidikan Jarak Jauh: Solusi Untuk Kualitas dan Aksesibilitas Pendidikan.* Tangerang Selatan: Universitas Terbuka.

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DEVELOPMENT OF MOBILE LEARNING BASED ON ANDROID

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Abstract

The development of technology and the number of smartphone users is increasing from year to year. Smartphone makes everything can be done in mobile, anywhere and anytime. The sophistication of the smartphone is being used as an opportunity in education, where the smartphone is used as a medium of learning support. Learning is expected to be interesting because it feels more interactive, which is equipped with image, sound, animation, interactivity and their users.

PRELIMINARY

Information and communication technology is very influential on the development of education. Education and training industry affected by digital technology and the Internet. This impact can be considered positive because it encourages various parties, educators, teachers, managers of educational organizations, and learners to adapt to innovation and global era. Digital technology can support the teaching and learning process, one through mobile learning.

Limitations of time that a teacher has to come face to face directly with students in the classroom can be helped with the use of mobile learning. Mobile learning is the delivery of electronic learning materials on mobile computing devices to be accessible from anywhere and anytime. Thus, students can access learning materials outside of school hours. The concept of learning with the use of mobile learning provides many benefits, both teachers and students. Utilization of mobile learning supports the learning process is carried out with conventional methods (face to face). The subject matter given in class is usually sourced from the textbooks and modules. Such material may be equipped with materials provided through mobile learning can be obtained from other sources such as articles, papers or journal from the internet. Students get additional teaching materials and class materials obtained optimally without being limited to school hours according to the schedule of the school.

LITERATURE

Mobile Learning

(M-Learning) is defined by Clark Quinn (2002) as: The intersection of mobile computing and e-learning: resources accessible wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment. E-learning independent of location in time or space. While Kukulska (2005: 1) defines it as follows: "Mobile learning is both new concept and one that has some familiar connotations. It is certainly concerned with learner mobility, in the sense that learners should be Able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location". Based on these two definitions of mobile learning can be concluded that mobile

learning is a facility or service that provides electronic information in general to learners and the educational content that will help meet the knowledge without questioning the location and time. M-learning system takes advantage of the mobility of a handheld device/mobile, such as mobile phones and PDAs, to provide a learning function that can be done anywhere and anytime.

Mobile learning is a learning model that utilizes information and communication technology. On the concept of the learning mobile learning brings benefits of the availability of teaching materials that can be accessed at any time and visualization of interesting material. Mobile learning is a part of e-Learning, but is more inclined to use the power of the mobile phone. Mobile learning provides learning materials that can be accessed anywhere and anytime with an attractive appearance.

M-learning usage will increase attention to the learning material, makes learning interesting, and can motivate students to lifelong learning (lifelong learning). In addition, compared to conventional learning, m-learning allows for more direct opportunities for collaboration and informal interaction among students.

M-learning can be used to elucidate the problems of conventional learning systems. Teachers and students, both require appropriate and useful system to interact and facilitate learning system. Mobile learning can not replace traditional classes but can be used as a supplement in the learning process in the classroom and the university (Sarrab et al., 2012: 35).

The principles that must be considered when utilize mobile learning for adult learning (Woodill 2011: 55): (1) Adult directly learn from children; (2) Employees learn from solving problems that matter to them; (3) Employees learn by collaborating as members of cohesive social groups; (4) Employees learn through conversing with, and listening to, each other; (5) Employees learn by integrating new information with what they already know; (6) Employees learn through active experiences that involve; Reviews their senses end Reviews their bodies; and (7) Employees learn best in the context of concrete situations where matters to them.

There are three functions and benefits of Mobile Learning in learning activities in the classroom (classroom instruction), namely: (1) the supplement (extra) nature and (optional), (2) complement (complement), or (3) substitute (substitution).

Android

Eddy (2009: 2) defines android as: "Android is an operating system for your mobile phone and definitely falls into the second category. Not only does Android offer you a powerful Internet experience, but tools are providing Also via the Internet to let people write Reviews their own applications for the phone".

Android is a software platform for mobile devices that includes an operating system, software, middleware (middleware), as well as the main user application (e-mail client, calendar, maps, browser, contacts, etc.).

Android has the following four characteristics: (1) Open Android was built to completely open so that an application can call one of the phone's core functionality such as making calls, sending text messages, using cameras and others. Android is a virtual machine that is specifically designed to optimize memory resources and hardware that is built into a device. Android is open source, it can be freely expanded to incorporate new technology that is more advanced at the time of the emerging technologies. This platform will continue to evolve to build innovative mobile

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applications. (2) All applications are created equal Android does not make a difference to the major applications of the phone and third party applications (third-party application). All applications can be built to have equal access to a phone's ability to provide comprehensive services and applications to users. (3) Solve the bottleneck in your Android breaks down the barriers to building new and innovative applications. For example, a developer can combine information obtained from the web with data on someone's cell phone as the user's contacts, calendar, or geographic location. (4) Development of applications that Android provides quick and easy access to a very broad to the user to use the application, the better. Android has a set of tools that can be used to help developers increase productivity when building the application.

Product excellence android-based mobile learning mobile learning compared to the other when used in the learning process are: (1) android-based mobile learning can be used anytime and anywhere without the constraints of time and place. (2) Mobile Android-based learning is easy to operate, because it uses simple menus. (3) The display size of mobile learning android based smartphone users adjusts the display screen. (4) Mobile learning is based on android without charge, because mobile learning is offline. (5) Mobile learning is based on android has an attractive visual appearance, thereby increasing student interest. (6) Mobile learning is based on android help the learning process, because it is equipped with materials and instructional videos.

Development of Mobile Learning

Options for the development of mobile learning as well as mobile application development, according to MihaiCorlan (2011) can be through the development of: (1) Native Apps, (2) Web Apps, and (3) Hybrid Apps. Native Apps Native App is an application created specifically for a particular operating system, for example android, iOS or Blackberry. Usually the creator of the operating system provides special tools and API for developers for the creation of applications.

The development of mobile learning that had been developed previously as a program containing images, text, sound, and animation to a format compatible with Android-based smartphones. The production process of android-based mobile learning is divided into three phases: pre-production, production and post-production.

Pre-Production

Pre-Production Phase starts by preparing support materials in the manufacture of mobile learning. Such materials include learning materials, manuscripts android-based mobile learning, and software used in the manufacture of the medium, as well as android smartphone.

Production

For producing mobile learning, it must first be prepared the environment, especially the Android SDK, ADT (Android Development Tools) and Eclipse. (a) To install Eclipse installation required Java JDK (Java development kit) version 5 or above; (b) Install the Android SDK and setting; (c) Then install and configure Eclipse, also install the ADT.

The process of making the layout could use a graphic display layout and can use the view source code (full code) in making this layout should set the variable

name and the variable name that will be used in the process of calling in classes that have been created.

Image Storage android Inside there are three pictures in the storage folder named with drawable-hdpi, drawable-mdpi, and drawable-ldpi with the provisions of the pixels different every folder.

Inputting Sounds Android prepare a special place for the voice database in raw folder that can be called by class, this folder can hold type sound wav, OOG, midi and mp3.

Dialing Video Function is used for video calling is a function media controller. This function can call the video that is at MMC mobile phone by using a variable named MyVideo caller who has been declared as the media controller.

Post Production

In the post-production phase of Android-based mobile learning product that is so will be imported into the smartphone with android operating system for easy use by students, so it can be used anytime and anywhere.

CONCLUSION

Mobile based teaching material can be a (1) supplement (additional) nature and (optional), (2) complement (complement), or (3) substitute (substitution) for students, so it can add insight. Learning is expected to be interesting because it feels more interactive, which is equipped with image, sound, animation, interactivity and their users. Stages of development of learning using mobile learning, namely: pre-production, production and post-production.

BIBLIOGRAPHY

Churchill, Daniel, at. al. (2016). *Mobile Learning Design: Theories and Application.* Springer.

Eddy, John and Patricia DiGiacomo Eddy. (2009). *Google on the Go: Using an Adroid-Powered Mobile Phone*. Que. Indiana. USA

Kulkuska-Hulme, Agnes and John Traxler. (2005*). Mobile Learning A Handbook for Educators and Trainers*. Routledge

Quinn, Clark. (2000*). Mlearning, Mobile Wireless in Your Pocket Learning*. Retrieved from http://www.linezine.com/2.1/feature/cqmmwiyp.htm

Sarrab, Mohamed, Laila Elgamel, &Hamza Aldabbas. (2012). Mobile Learning (M-Learning) and Educational Environments. *International Journal of Distributed and Parallel System: Vol. 3, No. 4* (p. 35).

Woodill, Gary, ED.D. (2011). *The Mobile Learning Edge: Tools and Technologies for Developing Your Teams*. McGraw-Hill

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M-LEARNING DEVELOPMENT PROGRAM EARLY CHILDHOOD EDUCATION 4-5 AGED YEARS

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Abstract

The aimed of this research paper included: (1) parents was positioned to improve program quality by intentionally leveraging the potential of technology and media for the benefit of every child, (2) parents should have to guided young children the appropriate use technology and interactive media as tools in early childhood m-learning, (3) parents as digital citizenship role model's for young children through an understanding of the use, abuse, and misuse of technology as well as the norms of appropriate, responsible, and ethical behaviours related to online rights, roles, identity, safety, security, and communication. Method of the research was research and development. Development research were keyboarding skills, alphabetic keys, content program curriculum for early childhood education 4-5 aged years. Subject research was 40 young children, 40 parents at Serang City Banten Province. Technical data collection was observations, via video, and field notes. Data analysis was qualitative descriptive. Findings research with grading percentage: (1) parents and children favorite mobile learning and application content program and academic skills were reading, math, science, foreign language, social studies, writing, keyboarding, helping document their's school ware and progress, helping children perform better in school, helping children understand rules m-learning; (2) parents' and children with m-learning applications development program educational values to: promote curiosity, can make learning fun, foster creativity, teach problem solving, teach pre academic skills, help children know local and global current games and others related. It was concluded an innovative educational approach with provides learning opportunities to the young learner's.

Keywords: m-learning, development program early childhood education, 4-5 aged years.

INTRODUCTION

Mobile learning offer modern ways to support learning process through mobile devices, such as hand held and tablet computers, MP 3 players, smart phones and mobile phones. Mobile devices have become attractive learning devices for education, especially for young children.

Many application games at the mobile phone. Parents can use this application to improve ability digital skill to young children. Young children very happy to play games with animation with their smartphone. So this review aims to fill a gap in the sounds based discussion on mobile learning and related emerging, pedagogical directions in parents education young children.

Research Questions: (1) What is favorite mobile phone application content to develop academic skills for young children?; (2) How are parents to developing digital learning with their mobile phone based on constructivist pedagogy for young children?; (3) How can application successfully sustain young children's interest and learning?

The purpose of the research are: (1) Parents should have to guided young children the appropriate use technology and interactive media as tools in early

childhood mobile learning; (2) Parents as digital citizenship role model's for young children through an understanding of the use, abuse, and misuse of technology as well as the norms of appropriate, responsible, and ethical behaviours related to online research and development.

M-LEARNING THEORY

Kukukska, Hulme and Traxler (2005: 12) explain that m-learning is learning accomplished with the use small, portable computing devices. These computing devices may include: smartphones, personal digital assistants, and similar handheld devices. Typical examples of the devices of m-learning or wireless devices used for m-learning include call phones, smarphones, palmtops, and handheld computers; tablet PCS, laptop, and personal media players can also fall within this scope. Collazo, Ronchetti, Trifonova, and Molinari (2003: 3) describes that m-learning is the idea that a students can learn from any place at anytime using portable learning devices state that, a mobile learning educational process can be considered as any learning and teaching activity that is possible through mobile tools or in settings where mobile equipment is available. Polsani (2003: 14) defines m-learning as a form of education whose site of production, circulation, and consumption is the network. Pea and Maldonado (2006: 8) stated that m-learning incorporates transformative innovations for learning futures. Conclusion m-learning is provides the potential to provide the right on formation to the right people at any time and any place using portable learning devices.

Mobile learning and mobile pedagogy in the field of early childhood and preseschool education. Mobile learning remains an unknown and challenging for many parents. Parents must understand of learning with mobile devices and knowledge about their pedagogical possibilities remains limited. Play is a natural activity for both humans and animals. Even though different scientific traditions describe play differently. Vygotsky (1966: 62-76) explain that children create an imaginary setting, take on roles, follow rules and norms related to those roles, and assign to objects and tools new features that do not exist outside play. Frobel describes children's spontaneous play opens up a view into the future. Play containts the cotyledons of the child's future. If these' are destroyed, the development of the child is stalled. Play is an activity owned by children. It is based on their initiatives, and they define how it proceeds. It is collective, creative activity that presents them with zones proximal development. Bodrova (2008: 369-381) defines children spontaneous play does not reveal the full developmental potential of play. An adult can support the development of children's play by discussing roles and casual relationships related to behaviours in play. Concluded mobile learning for young children is viewed as an activity with playing child's imagination at its core.

Kerawalla and Crook, et al., (2005: 3); National Institute for Literacy 2008; Calvert et al., 2005; Lisenbee 2009; Benson and Benson 2010; Buckleitner 2009; Chiong and Shuler, 2010; Couse and Chen, 2010: Rideout, Lauricella and Wartella, 2011 defines technology and interactive media are here to stay. Young children live in a world of interactive media. They are growing up ease with digital devices that are rapidly becoming the tools of the culture at home, school, and in the community. Rideout, Lauricella and Wartella (2011: 78) describes technology tools for communication, collaboration, social networking, and user-generated content have

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transformed mainstream culture. In particular, these tools have transformed how parents and families manage their daily lives and seek out entertainment, how parents use materials with young children communicate, and how their deliver. The prevalence of electronic media in the lives of young children means that they are spending an increasing number of hours per week in front of and engaged with screens of all kinds, including televisions, computers, smartphone, tablets, handheld game devices, and game concoles (Coomon Sense Media, 2011: 2). Young children need opportunities to develop the earny technology handling skills associated with early digital literacy that are skin to the book handling. Early childhood settings can provide opportunities for exploring digital cameras, audio, and video recorders, printers, and other technologies to children who otherwise might not have access to these tools. Appropriate technology and media should not replace activities such as creative play, real-life exploration, physical activity, outdoor experiences, conversations, and social interactions that are important for children development. Technology and media offer opportunities to extend learning in early settings in much the same ways as other materials such as blocks, manipulative, art materials, play materials, books, and writing materials also help young children save document, revisit, and share their real life experiences through images, stories, and sounds.

There are advantages of m-learning listed: (1) increased mobility is young children allow to access learning content and learning interactions indoor and outdoor areas, (2) time saving, (3) environmental friendly or less printing, (4) interactive link with their peers, parents, distance partners, and even interest groups worldwide. There are also disadvantages of m-learning listed: (1) there is no denying that storage capacities of PDA are limited, (2) device may become outdated quickly and young children have to keep combating obsolescence, (3) the buttons the keypad or styles are small and can be tricky for some people to manipulate, (4) too small display, (5) usable connectivity limitations, and (6) expenses costs.

METHOD

Method of the research was research and development. Development research was keyboarding skills, alphabetic keys, content program curriculum for early childhood education 4-5 aged years. Subject research were 40 young children, 40 parents at Serang City Banten Province. Technical data collection was observations, via video, and field notes. Data analysis was qualitative descriptive.

RESULTS AND DISCUSSION

M-learning is emerging as one of the solutions to the challenges faced by education. With a variety of tools and resources always available, mobile learning provides increased options for the personalization of learning also for young children. Parents and young children have stronger of m-learning applications for teaching academic content and skills favorite are:

Content Develop Content M-Learning for Young Children	Percentage Parents Responses
Keyboarding skill (practice using all of the keys on the keyboard as you explore the history of space travel, computers the internet, smart phones)	30%
Alphabetic Keys (example dinosaurs at play, explore a cave,	55%

discover cave paintings, watch cavemen build a fire, etc)	
Computer skills (as number and symbol keys)	15%
Total	100%

For these results parents and young children hope many applications about alphabet keys all any thematic. So young children can explore and problem solve, drawing digital, painting digital, spruning creativity, and digital literacy. Then, nowadays the development of the m-learning for young children progress is thought can foster knowledge and the experiences for this sensitive age. The support of specific areas in young children education according to the educational perspective with the maintance of the mobile applications. M-application with content academic skills are:

Academic Skills	**Percentage**
Reading	15%
Math	17%
Science	23%
Foreign Language	20%
Social studies	15%
Writing	10%
Drawing, Painting, Art	10%
Robotic	5%
Rain Forest	5%
Total Interested	100%

Discussion for this result of parents and children interesting for science and foreign language favorite activities with m-learning. Robotic and rain forest is the last range to choice for the activities use application.

Children are interesting in the application can be fleeting, such as developmentally appropriate and fresh content, shortened wait times, humorous activities, incentives, goals, and parental involvement can help to sustain interest. Greystripe (2009: 15) found his mobile learning for young children research that: (1) development appropriate content often, if younger child found the content of a particular mini-game to be too difficult, she or he move on to play a different game, (2) fresh content have burned out on the fimte amount of learning content many children, (3) wait time design for shorter playtimes 5-20 minutes, (4) humorous activities that children sought out activities that made them laugh, even when the content was too hard or too easy, (5) incentives if children as players can collect stickers through the games to appear in their my super stickers book, (6) goals is sometimes children saw collecting the stickers as a goal. Which increased the duration of their playtime and decreasing total playtime. So a complete sticker collection may have been too short term a goal, and (7) parental involvement is parents playmates provided scaffolding and extra prompts to help their children understand the material. Concluded mobile learning of the playing child becomes possible when the physical world is suitable for creativity and digital practices are a natural part of activity. Boundaries are crossed and a new understanding of the world is formed. It is a role of adults as participant is needed for plays to develop and enriches the game's content. Children should be given the opportunity to make choices of their own, as well as to follow instructions created by others.

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CONCLUSION

1. The favorite mobile phone application content to develop academic skills for young children are: (a) reading, (b) math, (c) science, (d) foreign language, (e) social studies, (f) writing exercises, (g) problem solving thematic, and (h) robotic.
2. Parents can developed digital learning with their mobile phone based on constructivist pedagogy for young children: (a) select, use, integrate, and evaluate technology and interactive media tools in intentional and developmentally appropriate ways, giving careful attention to the appropriateness and the quality of the content the child's experience and the opportunities for co engagement; (b) provide a balance of activities in program for young children, recognizing that technology and interactive media can be valuable tools when used intentionally with children to extent and support active, hands on, creative, and authentic engagement with those around them and with their world; (c) limit any use of technology and interactive media in programs dor children young than 2 to those that appropriately support responsive interactions between caregivers and young children and that strengthen adult-child relationships; (d) carefully consider the screen time recommendations from public health organizations for children from birth through age 5 when determing appropriate limits on technology and media use and screen time estimates should time spent in front of a screen at the early childhood program; and (e) provide leadership in ensuring equitable access to technology and interactive media experiences dor the children in their care and for parents and families.
3. Children are interesting in the application can be fleeting such as developmentally appropriate and fresh content, shortened wait times, humorous activities, incentives, goals, parental involvement.

Suggestion

1. Design m-learning the safe, productive use of mobile devices as learning tools in practice.
2. Parents make the case for m-learning development m-device policies and show case best practices.
3. Parents and young children on how to make better use of mobile device and applications for learning rather than for entertainment only and how to use them safely.

REFERENCES

Berson, L. R. (2010). *High Tech Tots: Childhood in a Digital World*. NC: Information Age Publishing.

Berson, L. R. and MJ. Berson, eds. (2010). *High-Tech Tots: Childhood in A Digital World*. Charlotte, NC: Information Age Publishing.

Bodrova, E. (2008*). Make-beileve Play vs Academic Skills: A Vygotskian Approach To Today's Dilemma of Early Childhood Education.* European Early Childhood Education Research Journal, 16 (3), 369-381.

Buckleitner, W. (2011a). *A Code of Ethics For The Publisher of Interactive Media For Children. http://bit.ly/eogcui.*

Calvert, S. L., VJ Rideout, J. L. Woolard, R. F. Barr and G. A. Strouse. (2005). "Age, Ethnicity and Sociometric Patterns In Early Computer Use: A National Survey." American Behavioural Scientist 48 (5): 590-607.

Chiong, C., and Cschuler. (2010). *Learning Is There on Application For That? Investigations of Young Children's Usage and Learning With Mobile Devices and Application. New York: The Joan Ganz Cooney Center at Sesame Workshop*. http://pbskids.org/read/files/cooney-learning-apps.pdf.

Collazzo, L. Molinari, A., Ronchetti, M., and Trifonova. (2003). *Towards a Multivendor Mobile Learning Management System. Proceeding For The World Conference On E-Learning. Phonix*, USA. Retrieved April 24, 2007. from:http//www.science.unitn.it/≈foxy/docs/Towards % 20a% 20multivendor520LM5 20 (long).pdf

Common Sense Media. (2011). *Zero To Eight: Children's Media Use In America*. San Fracsisco: Author. www.commonsense media.org/research/zero-eight-childrens-media-use-america.

Couse, L. J. and D. W. Chen. (2010). ''*A tablet Computer For Young Children? Exploring Its Viability For Early Childhood Education*. ''Journal of Research on Technology in Education 43 (I): 75-98.

Keramalla, L., and C. Crook. (2000). *Children Computer Use At Home and At School: Context and Continuity*. ''British Educational Research Journal 28 (6): 751-771.

Kukulska_Hulme, A., and Traxler, J. (2005*). Mobile Learning: A Handbook For Educators and Trainers*. London: Routledge.

Kumar. (2013). *E and M-Learning A Comparative Study. International Journal on ew Trends in Education and Their Implications, July 2013 Volume: 4 Issue: 3 Article: 08 ISSN 1309-6249.*

Lisenbee, P., (2009). *Whiteboards and Websites: Digital Tools For The Early Childhood Curriculum.* ''Young Children 64 (6): 92-95.

Mehdipor, Yousef and Hamideh Zerehkafi. (2012). *Mobile Learning for Education: Benefits and Challenges.* India: Osmania University.

Mobile Learning Community. (2010). *Mobile Learning History*.

NAEYC. (2014). *Technology an Interactive Media as Tools In Early Childhood Programs Serving Children From Birth Through Age 8.* Washington: NAEYC.

National Institute for Literacy. (2008*). Developing Early Literacy: Report of The national Early Literacy Panel. A Scientific Synthesis of Early Literacy Development and Implications for Intervention*. T Shanahan. Chair. Lousville. KY: National Center For Family Literacy.

Pea, R. and Maldonado, H. (2006). *MLD For Learning: Interacting Through New Computing Devices Anytime, Anywhe*re. In R. K. Sawyer (Ed). The Cambridge Handbook of Learning of The Learning Sciences (pp. 427-441). Cambridge University Press.

Polsani, P. (2003). Network Learning In K. Nyirik (ed) *Mobile Learning Essay on Phylosophy, Psychology And Education*. Vienna: Passage Vertaq, 2003139-150, ISBN-38511656032.

ISBN 978-602-73030-1-0

Vygotsky, L. (1966). *Play and Its Role In The Mental Development Of The Child*. Voprosy Psikhologii. 12 (6), 62-76.

A STUDY ON INDEPENDENT LEARNING MATERIAL AS AN ISLAMIC MODULE STUDY MODEL WITH A VIEW OF DERADICALIZATION OF RELIGIOUS UNDERSTANDING TO PREVENT RADICALISM AT SCHOOLS

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Abstract

The general objective of this development research is to create Islamic study self-learning material module with the view of de-radicalization of religious understanding. This study adopts research and development which refers to the model from Borg & Gall. The results of the preliminary study found that prevention of radicalism understanding of religion that has been implemented in the educational units in Depok, West Java is still insignificant, the learning resources that are based on de-radicalization of religious understanding is not yet available, capacity building forward-de-radicalization of religious understanding is still limited and even the majority of such educational units have not completed the de-radicalization programs.

INTRODUCTION

Radicalism in the name of religion has reached a critical stage, not only does it threatens the foundations of nationality, but also threaten the educational institutions. Schools, especially primary and secondary education faces major challenges related to radicalism in the name of religion. Various researches reported that recruitment networks of radical religious ideology seem to occur in a number of schools including schools in Depok, West Java. The results of some research and the confession of actors who escaped radical and extreme cells indicated that Islamic religious teachers in public schools are more vulnerable to recruitment than teachers at the Islamic Schools.

Vulnerability of teachers against radicalism in the name of religion at present day is quite serious. Moreover, the seeding ideological radicalism is getting increasingly dynamic. It does not only takes place through conventional channels, but also through self-indoctrination by utilizing information from online pages that cause teachers to radicalize themselves.

Meanwhile researches in Indonesia are commonly associated religious radicalism, instead of de-radicalization of religion. It is as shown by the research of Institute for Islamic and Peace (LAKIP) which involves 590 of a total of 2,639 teachers of Islamic Religious Education (PAI) and 993 Muslim students of the total 611,678 of high school students in Jabodetabek which concluded that as much as 62.7% of PAI teacher respondents have been infiltrated with radical religious understanding (Zaini, 2015: 12).

These conditions have posed major challenges to the school today in playing a strategic role, especially against the volatility of radicalism in the name of religion. The occurrence of a series of religious violence against minorities, extremism religious understanding, inter-religion intolerance, acts of terrorism, the growing number of group upholding of the ideology of Islamic State of Indonesia (NII) which

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is suspected to constantly recruiting members by brainwashing, have become serious threats to the nation's future, especially teachers (Jamaluddin, 2015: 45).

Radicalism stems from the word "radical" which is derived from the word "radix" which means root, base, bottom and may also means a comprehensive, all-out, insistent on changes (Rapik, 2014: 107-108). Meanwhile, according to Jamaluddin (2015: 1) radicalism comes from the word Radic which means meaning root and radical is (something) that are fundamental or 'to the roots'. This predicate can be given on a particular thought or understanding, hence the term 'radical thinking' and it may also be given to 'movement' or "acts".

Based on the above opinion, it is understood that radicalism contains two contradictory meanings, there is a positive meaning namely fundamental thinking, ideology or action, but there is also a negative meaning which associate radicalism with intimidation, violence and terror. The latter tends to be the dominant factor of violence in the name of religion that compromises the joints of religious and national life.

Ideally, schools should play a concrete role in preventing vulnerabilities of teachers from the threat of radicalism in the name of religion through the de-radicalization of religious understanding. Moreover, the school should functions to develop the ability, character, and personality of learners. As the Consequences, all teachers in the learning process in schools should be oriented to development of personality of students which is civilized instead of radical personality, because radicalism in the name of religion is a form of deviant behavior that should be prevented.

Nasaruddin Umar (2014: 4) believes that de-radicalization is not intended as an attempt to convey a new understanding of the teachings of Islam nor to weaken Islamic faith, but rather as an effort to straighten and restore about what and how Islam actually is.

Thus it can be understood that the de-radicalization is an attempt to straighten out, neutralize and change the view, understanding, belief in the teachings of Islam of a person or group and change such understanding or invoke positive behavioral changes.

This Study on Independent Learning Material As An Islamic Module Study Model With A View Of De-radicalization Of Religious Understanding to Prevent Radicalism At Schools is very important due to; (1), identification of number of teachers in Depok which has a radical understanding on religion which indicates a problem, thus a solution is needed; (2), radicalism network in the name of religion applies a variety of strategies to make teachers as their target group, hence fortifying teachers against radicalism has become a necessity; (3), capacity building for teachers with the view of de-radicalization of religious understanding is still limited, hence it is necessary to have learning resources which can prevent the vulnerability of radicalism in the name of religion.

Based on these facts, this development research is conducted to get model modules which can improve the ability of teachers to understand the teachings of Islam without radicalism.

The focus of this research problem includes; (1), how has the prevention of radicalism in the name of religion for Islamic Religion teachers been implemented in the educational unit in Depok, West Java ?; (2) How to design an Islamic study self-

learning material model with the view of de-radicalization of religious understanding ?; (3) How to design an Islamic study self-learning material module with the view of de-radicalization of religious understanding?; (4) Is the Islamic studies self-learning materials module with a view of de-radicalization of religious understanding has been designed to improve the ability of teachers to understand the teachings of Islam without radicalism ?.

The study is expected to be theoretically and practically useful, including: (1) Scientific usability. Islamic study self-learning material module with the view of de-radicalization of religious understanding can contribute to the development of scientific models of de-radicalization of religious understanding in schools; (2), the practical utility. Islamic study self-learning material module model with the view of de-radicalization of religious understanding can become an input for Ministry of Education and Culture to counter radicalism in religious understanding that threaten the teachers at school nowadays; (3), in terms of the implications, Islamic study self-learning material module with the view of de-radicalization of religious understanding, will allow teachers of Islamic study to fend off the flow of radicalism in the name of religion, either in person, group or institution.

The general objective of this development research is to create Islamic study self-learning material module with the view of de-radicalization of religious understanding. The specific purpose of this study is; (1), to identify efforts to prevent radicalism of religious understanding which has been implemented in the educational units in Depok, West Java; (2), to create Islamic study self-learning material module with the view of de-radicalization of religious understanding; (3), to design Islamic study self-learning material module with the view of de-radicalization of religious understanding; (4), to test the effectiveness of the module in improving Islamic religious teachers ability in understanding the teachings of Islam in a comprehensive manner to prevent radicalism.

RESEARCH METHODOLOGY

This study adopts research and development which refers to the model from Borg & Gall (Gall, 1983: 775). Research procedures of Borg and Gall, have 10 steps such as follows: (1) research and information gathering, (2) planning, (3) product development, (4) initial field test, (5) the revision of major products, (6) advanced field test, (7) the revision of operational production, (8) operational field trials, (9) final field test, and (10) the dissemination and implementation.

The use of Borg & Gall model is for preliminary research step only, subsequently self-learning module development procedures are designed to follow the MPI steps. Basically, research and development process can be described as follows; procedural model which follows the steps of Instructional Development Model (MPI), which consists of three stages (1), identification of the stage; (2), the development stage; (3), the evaluation and revision stage, (Suparman, 2012: 156). Before the three stages in the procedural model can be implemented, a preliminary study of the Borg & Gall will be first conducted.

Furthermore, self-learning module frameworks cognitive framework with the view of de-radicalization of religious understanding is based on by The Fifth Discipline of Senge (2000: 59-93) which consists of thinking system, personal mastery, mental models, shared vision and team learning. The fifth dimension of

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Peter Senge is integrated seamlessly to characterize cognitive frameworks of to design Islamic study self-learning material module with the view of de-radicalization of religious understanding.

Methods of data collection used in the preliminary study are the technique of interview, observation and document study. Data were analyzed through data reduction, data presentation and conclusion. Preliminary research data are used as the basis of needs analysis. The results of the needs analysis is then used as the basis for the development of instructional products through several steps including: identification, development, evaluation and product revision.

Meanwhile, to product development is tested by using test instructional design experts, subject matter experts and linguists. While product trials uses one to one test, small group test and field test. The results of the validation and testing are used for the revision of product development, to be eligible to be used for independent study.

RESULT OF THE STUDY

The results of the preliminary study found that prevention of radicalism understanding of religion that has been implemented in the educational units in Depok, West Java is still insignificant, the learning resources that are based on de-radicalization of religious understanding is not yet available, capacity building forward-de-radicalization of religious understanding is still limited and even the majority of such educational units have not completed the de-radicalization programs. Based on the need analysis, Islamic teachers require Islamic study self-learning material module with the view of de-radicalization of religious understanding.

Based on the bibliography study, and comparison of the development model available, the researchers chose Instructional Development Model (MPI) as a reference for the development of self-learning materials. The second step of MPI namely preparation of strategies and development of instructional materials is integrated with the concept of The Fifth Discipline by Peter Senge, starting from system thinking, complete learning, mental models, shared vision and team learning. The fifth dimensions of Peter Senge are integrated seamlessly to characterize critical frameworks of packaging and strategies in the Islamic study self-learning material.

After establishing MPI as the appropriate learning development model in developing self-learning module, the development procedure is done through three steps, namely: identification stage, development stage, and evaluation and revision stage.

The model developed consists of (1) the conceptual model; (2) the procedural model, which developed under the MPI procedure. The packaging of instructional materials and strategies is inspired by critical frameworks of The Fifth Discipline of Peter Senge; and (3) physical models, in the form of modules, lecturers guide and CD for independent exercise instructions for teachers of Islamic study.

To determine the effectiveness of the product, field trials are imperative. It will be done by researchers after getting validation and recommendations from the team of experts that declare the product as eligible. The overview of the effectiveness of the results of field trials will be seen from the usability and usefulness of the model developed. Manifestations of usability and usefulness of the model developed is visible from two response factors of the test subjects.

The results of product effectiveness test through feedback subject are as follows: (1) Individual Test which includes: (a) clarity of learning materials which reaches 85. 21%, (b) the impact on users, 88.5%, (c) the feasibility and the attitude of users, which is up to 90, 02%. In overall, the quality of the responses of subject of individual testing against eligibility indicators and attitude shows that Islamic study self-learning material module with the view of de-radicalization of religious understanding is feasible and usable; (2) Small Group Test, the results of the small group test include: (a) the attractiveness of the module, 86.09%, (b) the duration of learning time, 87.12%, (c) mastery of learning materials, 89.10%, (d) the appropriateness of the use illustrations, 89.02%, (e) conformity of evaluation with the material, which reaches 90.02%. In general, the acceptability of small group test subjects to Islamic study self-learning material module with the view of de-radicalization of religious understanding, which has been developed is quite positively. Thus, we can conclude that the Islamic study self-learning material module with the view of de-radicalization of religious understanding is feasible as a learning resource; (3) Field Test, the results of field trials include: (a) the learner attitude towards product development, 92.19%, (b) feasibility of product development, 92.13%, and (c) the currency of material product development, 95.09%. Based on the results of these trials, it can be concluded that the Islamic study self-learning material module with the view of de-radicalization of religious understanding is feasible and usable. Based on the test description, the characteristics of the end users of the modules developed are reflected. Based on the results of such assessment, the Islamic study self-learning material module with the view of de-radicalization of religious understanding is effective and is appropriate to be used as a learning resource for teachers of Islamic study.

CONCLUSION

Based on the whole process of research and development of the Islamic study self-learning material module with the view of de-radicalization of religious understanding, it can be concluded as follows:

1. The results of the preliminary study found that prevention of radical understanding of religion that has been implemented in the educational units in Depok, West Java is still insignificant, the learning resources that is based on de-radicalization of religious understanding is not yet available, capacity building towards de-radicalization of religious understanding is still limited and even the majority have not completed the de-radicalization program. Based on the need analysis, Islamic teacher requires Islamic study self-learning material module with the view of de-radicalization of religious understanding.
2. Based on the bibliography study, and comparison of the development model available, the researchers chose Instructional Development Model (MPI) as a reference for the development of self-learning materials. The second step of MPI namely preparation of strategies and development of instructional materials is integrated with the concept of The Fifth Discipline by Peter Senge, starting from system thinking, complete learning, mental models, shared vision and team learning. The fifth dimensions of Peter Senge are integrated seamlessly to characterize critical frameworks of packaging and strategies in the Islamic study self-learning material.

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3. The process of designing the Islamic study self-learning material module with the view of de-radicalization of religious understanding begins with identifying instructional needs and writing a general instructional objectives, instructional analysis, identify the behaviors and characteristics of early Islamic religious teachers, write the specific instructional objectives, write the reference benchmark tests, preparing instructional strategies, and developing instructional materials. The packaging of learning materials and preparation of instructional strategies is integrated with the idea of The Fifth Discipline by Peter Senge. Furthermore, the design is prepared and formative evaluation is carried out. Formative test consists of experts test (instructional design and subject matter experts and linguists), one to one test, small group test and field test. The final results of the formative instructional system are in the form of Islamic study self-learning material module with the view of de-radicalization of religious understanding.
4. The results of product effectiveness test through field test found that the product development in the form of Islamic study self-learning material module with the view of de-radicalization of religious understanding is able to improve the ability of teachers to understand the teachings of Islam without radicalism. Effectiveness of products is evidenced by the response of Islamic study teachers to the products and improving learning outcomes of the teacher, as evidenced through subject responses. There is an improving understanding of Islamic religious teachers of Islamic teachings without radicalism, which is predicted to have strong influence on the Islamic religion teachers, given the understanding of religious teachings has correlation with belief, while belief strongly influence the behavior.

BIBLIOGRAPHY

Dechesne, Mark, *Deradicalization: Not soft, but strategic,* Leiden: The Hague Center for Terrorism and Counterterrorism (CTC) - University of Leiden, 2012.

Gall, M. D. Gall and Borg, W. R. &, *Educational Research: An Introduction, Fifth Edition*. New York: Longman, 1983.

Jamaluddin, *Radikalisme Pemahaman Agama: Masalah dan Solusinya*, Depok: Mitra Madani, 2015.

Karwadi, "Deradikalisasi Pemahaman Ajaran Islam", *Jurnal At-Tahrir*, Vol 4. No. 1 Mei 2014.

Miarso, Yusufhadi, *Menyemai Benih Teknologi Pendidikan*, Jakarta: Kencana Predana Media Group, 2009.

Pribadi, A Benny, *Model Desain Sistem Pembelajaran*, Jakarta: Dian Rakyat, 2009.

Rana, Amir, Muhammad, "Swat De-radicalization Model: Prospects for Rehabilitating Militants", *Conflict and Peace Studies*, Volume 4, (2), 2011.

Rapik, Mohammad, "Deradikalisasi Faham Keagamaan: Sudut Pandang Islam", *Jurnal Inovatif* Vol. VII No. II Mei 2014.

Senge, Peter, *Afifthe Displine, Schools That Learn*, New York: Doubleday, 2000.

Suparman, Atwi, M, *Desain Instruksional*, Jakarta: Universitas Terbuka, 2004.

_____. *Desain Instruksional Modern*, Jakarta: Erlangga, 2012.

Umar, Nasaruddin, *Deradikalisasi Pemahaman Al-Qur'an dan Hadits*, (Jakarta: Elex Media Komputindo, 2014).

Zarkasy, Jaja & Al-Asyhar, Thobib, *Radikalisme Agama & Tantangan Kebangsaan*, Jakarta: Direktorat Jenderal Bimas Islam Kementerian Agama RI, 2014.

Zaini, S., *Radikalisme di Sekolah*, Jakarta: Edukasia Press, 2015.

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DEVELOPMENT OF WEB-BASED TEACHING MATERIALS BY USING ADOBE DREAMWEAVER CS APPLICATIONS ON EVALUATION COURSE AT FIFTH SEMESTER IN EDUCATIONAL TECHNOLOGY PROGRAM

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Abstract

Product is developed in the form of web-based teaching materials by using Adobe Dreamweaver CS5 applications on Evaluation Course at Fifth Semester in Educational Technology Program of Faculty of Teacher Training and Education in Baturaja University. Kind of this research is Development Research which model used is a procedural model that is the data collection technique such questionnaires, while data analysis technique is using a percentage formula. In the first stage of trying out the product with a media expert there was 82.5% obtained as good predicate, design expert there was 86.6% obtained as very good predicate, and material expert there was 85% obtained as good predicate. The second stage has been done product testing of individual scale with the number of respondents 3 students whom got 86.23% as very good predicate. After that, the next stage was trying out small-scale with eight students of fifth semester, and the result obtained was 85.01% as good predicate. The result of trying out large-scale was 87.01% obtained as very good predicate. The advantage of this product is for the students can search course materials easily in Evaluation Program.

Keywords: Web-based, teaching materials, Development

INTRODUCTION

The development of science and technology more encourages reform efforts to utilize the results of technology in education. Education as one of the aspects that an important role to prepare qualified human resources for the people's development. Therefore, reform in education as an effort to improve the quality of education should be done.

Teaching-learning material in evaluation material subject use demonstration, evaluation practices, and problem solving methods such as students' proposal guidance. The learning method is used by face to face where lecturer and students are in the same place with the limited time and place. Media used in the study is LCD projector as presentation slide. Moreover, is Learning Blog as information to students both in terms of material to be studied or information about learning outcomes is taken by student? Although many lecturers who use multimedia tools, it still requires face to face to the student. This can make students just accept what is presented by lecture. In addition, Education Technology Studies Program, especially in the covise of program evaluation has not developed a Web learning application program Adobe Dreamweaver CS5, to be used in learning activities. Even though, if the application is used instead of Adobe Dreamweaver CS5, but the others application.

According to Andi (2011: 13) Dreamweaver is a professional HTML editor for visually designing and managing web sites or web pages. Dreamweaver is the first

software that is used by Web Designers and Web Programmers to develop a website, because Dreamweaver has a working space, facilities and capabilities that can improve productivity and effectiveness in design and build a website.

RESEARCH METHODOLOGY

Type of this research is research and development. This is a research method that is used to produce a particular product and determine the impact of the utilization of these products. The model of this research is a procedural descriptive, outlining the steps that must be followed to produce the product. Evaluation test product refers to the opinion of Warsita (2008: 240) form the evaluation of media programs and learning materials composed of evaluation experts are those who act expert evaluation are subject matter experts (subject matter expert), expert media (media expert), design experts. Evaluation of individuals is the subject of evaluation 3 (three) students of the fifth semester Educational Technology has the ability High, medium and low. Evaluation of small groups is a field trial on a small scale is numbered 8 peoples. The scales are all students of Educational Technology courses totalling 40 people.

The researcher used Instrument and develops level of eligibility specifically in the form of a questionnaire. According Arikunto (2006: 151) Questionnaire is "a number of written questions that is used to obtain information from respondents" Analysis of the questionnaire data processing to calculate the percentage of each instrument with the formula percentages.

RESULTS AND DISCUSSION

The trial results media expert

Based on the validation results of the media experts, the average of the questionnaire testing media expert is 82.5%. Thus, the average overall of media experts test questionnaire was 82.5% with a good rating. The advantage is teaching materials that developed have facility to enter the matter and the material so that it can adjust to the prevailing curriculum.

The results of the trial design experts

Based on the results of the validation of the design experts, the average of the questionnaire in the content was 86.6% with a good one. The advantages are as a medium of learning to facilitate students and faculty in the process of learning, web-based and easily accessible from anywhere in origin connected to the Internet. Similar with Rusman opinion (2012: 351) the excess of web-based learning (e-learning): 1) Availability of this e-moderating in which teachers and students can communicate easily through internet regularly, or whenever the communication is done with no restricted by distance, 2) Educators and learners can use teaching materials or learning instructions are structured and scheduled through the internet, so that both can mutually assess the extent to teaching materials learned.

3. The trial results matter experts

Based on the results of the validation test materials experts, an average of a questionnaire completed was 85% with a good rating. The validation of the test will

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give advantages to the lecturer in presenting the material, students easy to understand, effective and efficient in the implementation of the learning process.

The results of the evaluation per person (Trial individual)

After an evaluation of individuals, the researchers continued research and development to the next stage which evaluate individual testing, which was held on December 2, 2015 with 3 respondents Student Educational Technology Program study data analysis 86.23% had both criteria at all.

Evaluation Small Group (Small Scale Test)

After an evaluation of individuals, the researchers continued research and development to the next stage of evaluation of the small group, which was held on December 3, 2015 with respondents 8 V semester students of Educational Technology Program study results of data analysis 85.01% had both criteria.

Field Trial (Large Scale)

The trials of the last field trial which was held on December 4, 2015, with respondents 40 students of class V semester A.5.1 and A.5.2 Education Technology Studies program. Based on data and analysis of field trials that have been described, we can conclude that the value obtained 87.01 % of respondents indicated that the product in the form of web -based teaching materials using Adobe Dreamweaver CS5 applications on the course evaluation fifth semester program of study Educational Technology Program has a good criterion.

CONCLUSIONS AND SUGGESTIONS

Based on the research that has been done and the discussion that has been described, it can be concluded that the development of teaching materials web-based application program Adobe Dreamweaver CS5 in the eyes of Class Evaluation Program V semester study program of Education Technology FKIP University Baturaja feasible in college for ease in learning activities in order to more effectively and efficiently. Suggestion the study program, should implement a Web-based teaching materials optimal management of existing Internet-based in order to be presented the necessary information quickly, accurately, and efficiently.

BIBLIOGRAPHY

Andi, Madcoms. 2011. Adobe Dreamweaver CS5 with PHP-MySQL program. Yogyakarta: Madcoms.

Arikunto Suhasimi. 2006. Research Procedure A Practical Approach. Jakarta. Rineka Reserved.

Rusman. 2012. Models of Learning Developing Teacher Professionalism. Jakarta: PT RajaGrafindo Persada

Warsita, Bambang. 2008. Learning Technology Platform Application. Jakata: Rineka copyright.

ELECTRONIC & MOBILE IMPLEMENTATION AND MANAGEMENT

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USE OF MOBILE MULTIMEDIA BASED GRAPHICAL USER INTERFACE (GUI) IN LEARNING

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Abstract

Teachers have various problems when implementing the learning in the classroom. Learning problems are caused because the teachers do not understand the Characteristics of learners with learning content. Teachers should use modern technology tools that help them to solve this problem significantly. Many types of teaching aids have made the information and communications technology, or commonly known as multimedia. Multimedia means is one of the new technology is based on a computer program that can make a more complete media. It uses a variety of methods and reliable for education. Mobile multimedia as a new product of modern technology seeks to involve all the senses, including visual, hearing and feeling. Mobile multimedia can compare with other educational media, multimedia tools and methods are used to create good communication between teachers and learners during the learning process. Mobile multimedia can improve attitudes, motivation and imagination of the students in the learning process.

Keywords: Mobile Multimedia, Graphical User Interface (GUI), Learning

INTRODUCTION

The electronics revolution can not be denied, became one of the causes of changing styles and patterns of human life today. Technology, which is the visual embodiment of operating the digital world has developed so rapidly. The count is no longer in a number of years, months or days, but in seconds. Technology is integral and indispensable to the life of modern society. I never imagined in science and technology are so rapid development, Tofler in Miarso (2004) described the development as a revolution that took place in three waves. The first wave in the form of agricultural technology, the second wave is characterized by the technology industry, and the third wave of the revolution of electronics and informatics technology.

Smaldino, et al., (2007) suggest that technology plays an important role in the education of students invariably. Utilizing and designing technology and media in particular can make a major contribution to effective learning in all students and help them reach their highest potential regardless of their innate abilities. Computer as one of the technologies considered appropriate product is used as a learning tool and has huge potential to be used in the learning process. Computers capable of displaying a variety of media components called with multimedia, such as video, images, text, animation, and sound so it can stimulate more senses.

Suyanto (2005) states that multimedia is the use of computers to create and combine texts, graphics, audio, moving images (video and animation) by combining links and tools that allow users to navigate, interact, trying creations, and communicate. Furthermore, Vaughan (2006) says that multimedia is a combination of text, art, sound, animation and video delivered to an audience with a computer or

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electronic equipment and digital manipulation of others. Through a combination of these media into interactive learning experiences that reflect an experience in everyday life. Munir (2008), that can be interpreted as a multimedia presentation technology that optimizes the computer's role as a medium that display text, sound, graphics, video, animation in an integrated and interactive display. Multimedia has several features that are not owned by other media.

In the development of multimedia can be categorized into two groups, namely linear multimedia and interactive multimedia. Linear Multimedia is a multimedia that is not equipped with a controller thereof. Sequential or sequential nature and duration of impressions can be measured. Film and television are included in this group. While a multimedia interactive multimedia is equipped with a controller that can be operated by the user, so the user can choose what you want for the next process. Typically, multimedia is equipped with several navigation which is also called graphical user interface (GUI), either an icon or button, pop-up menus, scroll bars, and others that can be operated by the user for a means of browsing to a wide range of information window with the help means of hyperlinks. Application of interactive multimedia is obtained on learning multimedia and gaming applications. Interactive multimedia does not have a long duration for the broadcast depends on how long the user to browse this media.

Multimedia interactive learning can be applied in education. Multimedia applications in these fields change conventional learning process becomes more interesting and interactive, so that the learning process is not too monotonous as long as this is done in schools in general such as multimedia applications to improve reading skills in children. The application can be inserted animations are certainly interesting for the children so that they can help increase their interest in reading and other matters (Vaughan, 2004).

LITERATURE REVIEW

Graphical User Interface (GUI)

Sawyer and Williams (2003) to express opinions on the following GUI: Graphical User Interface (GUI), which allows you to use a mouse or keystrokes to select icons (little symbols) and commands from menus (list of activities). They explained that the GUI allows us to use the mouse and keyboard to select icon (small emblem) and a command from the menu (list of activities). Irawan (2009) also gave the same opinion about the GUI or the "graphical interface", the view that allows us to use the mouse to interact on an operating system or application. Valacich and Schneider (2012) explain that users can take advantage of the graphical user interface (GUI) in a visual programming. For example, users can easily give a command button to the display using a computer mouse.

Furthermore, O'Bannon and Puckett (2010) provide an explanation ... a graphic user interface that Allows icons (small graphics) to represent the tools for the system and uses a mouse to move about. They say that the graphic user interface allows the icons (small pictures) to represent a tool that serves the system and move it using a mouse. Opinion - the above opinion expressed in the ease of a GUI to enable or use functions - functionality in a software application, just use the mouse and keyboard on the computer to activate the icon (small emblem) and the menu selection activities that have been available.

The quote above is very clear that with a Graphical User Interface (GUI) the user or the user can view the functions - functions that are available on the applications used, therefore web developers simply by activating or using function - the function to obtain a form of display or component desired. It is highly relevant to the concept of the previous chapter that describes a WYSIWYG (What You See Is What You Get) which means that what you see is what you will get.

Researchers found a slightly different opinion about the graphical user interface (GUI) by Latham, Crockett, McLean, and Edmonds (2010) in the Proceedings of the International Conference 2010, describes the Graphical User Interface (GUI) as follows: The graphical user interface (GUI) displays Provides a webpage roommates instructions, displays questionnaires, tests, images, documents, interactive movies and the chat area used to send communication to and from the user. The above quotation explains that the Graphical User Interface displays a web page that provides a command - a command, questionnaires, tests, pictures, documents, films and interactive chat feature that is used to communicate between users.

Overall, in the opinion - opinions above about design techniques Graphical User Interface (GUI), that the Graphical User Interface (GUI) is an interface to enable the user or the user to select a command that will be used, run the program, view a series of files and choose another option is simply to enable or clicking the small picture emblem commonly called the icon using the mouse or keyboard, but it can also through the menu list of activities that have been available on the computer screen or application software used them.

Mobile Multimedia Based Graphical User Interface (GUI) In Learning

Mobile multimedia learning can be classified into three characteristics. First, multimedia is used as one element in the classroom. For example, if the teacher explains the material through teaching in the classroom or on the basis of a reference book, the multimedia is used as a complementary medium to explain the material taught in class. Multimedia with this type is also called the 'presentation of learning'. The material displayed is not too complex and only displays a few items that are considered important, either in the form of text, images, video or animation. Exercises and tests are less suitable to be placed on the presentation of this study, unless the quiz is to build a classroom atmosphere to make it more dynamic.

Second, mobile multimedia is used as a self-learning material. In this second type of multimedia may be able to support learning in the classroom may not. Unlike the first type, the second type throughout the instructional needs of users satisfied entirely in the multimedia package. That is the entire facility for learning, including training, feedback and tests which support the learning objectives are provided in the package. Third, mobile multimedia is used as a medium only in learning. Thus the entire learning facilities that support learning objectives have also been provided in this package. Such packages are often called CBL (Computer Based Learning).

Bates (1995) emphasized that among other media, multimedia interactivity or other computer-based media is the most obvious (overt). Real interactivity here is interactivity that involves physical and mental from users when trying to program multimedia. For comparison a book or television media actually provide interactivity, only this interactivity is vague (covert) because it only involves mental user.

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Physical interactivity in multimedia learning varies from the most simple to the most complex. Interactivity simple example, pressing the keyboard or click with the mouse to move the page (display) or enter answers of an exercise given by the computer. Interactivity is a complex example of activity in a simple simulation in which the user can vary a particular variable or in a complex simulation in which the user moves a joystick to simulate the movement of aircraft piloting.

Mobile multimedia excellence in this media interactivity is inherently capable of forcing the user to interact with the material both physically and mentally. Of course the ability of this force depends on how effective instruction is able to attract users to try out actively learning presented. An example is a multimedia learning program which contains material about the atom. By using the learning multimedia users will be invited to directly try and use atomic simulations available. By contrast, if the same material is presented with a book or video. In this case the user simply passive (physical) see how to use the atomic displayed. Mental activity (users absorb how to use and set up may occur but physical activity (in this case to try for themselves how to regulate not happen. Put something else - in terms of a simulation - using learning multimedia users will try directly to how things happen.

Many research results to improve learning through multimedia such as Wahyudin - Sutikno, A. Isa. The results showed that the students' understanding increased from 60% of students who otherwise may not understand on to 25% of students who otherwise may not understand. The results of the analysis of the responses of students to teaching gained the average - average student responses before the action amounted to 72.90%. After the action, value - average student responses increased to 76.81%. Another study conducted by Wafik Khoiri, Rochmad Rochmad, Adi Nur Cahyono. The research results obtained problem solving ability of students learning with multimedia had achieved classical completeness. The average results of tests students' ability to think creatively learning with multimedia is better than the results of the test's ability to think creatively control class.

In the presentation, mobile multimedia learning can be grouped into several formats, among others; a) tutorial is done tutorial material, as befits a tutorial conducted by the teacher or instructor. Information is done with text, images, whether still or moving. Finished presenting the impression, given a series of questions to evaluate the success rate. b) Drill and Practice is to train the user so as to have proficiency in a skill or strengthen mastery of a concept. c) Simulation of trying to match the dynamic processes that occur in the real world, for example to simulate the aircraft, as if the user performed the activity flies an airplane. This format tries to give real-world experience problems that are usually associated with a risk, such as the aircraft is dropped. d) experiments or experiments that this format is similar to the simulation, but more aimed at the activities of the experiment, such as lab activities in the science lab, biology or chemistry. Users are expected to eventually be able to explain a concept or phenomenon based on experiments they do are virtual. e) The game is a game that served still refers to the learning process and the program is expected to occur multimedia format playful learning activities.

Macromedia Flash

There are many uses that we can use with Macromedia Flash, as proposed by Finkelstein and Leete (2006), you can use Flash 8 to create simple animations to add

to your web pages. You can also create an entire web page or site using flash and combine text, graphics, interactive buttons, and animation.

Additionally, Rapo and Michael (2006) argued tools (tools) that are used in Macromedia Flash version 8, they say that Flash 8 is the latest version of the Flash authoring tool and Flash 8 player is the latest version of the player who used to run Flash applications. Flash 8 introduces many improvements authoring tools, as well as the player. There are differences compared with previous versions of Flash, which provides a flash 8 assists script features that are used to provide automated features in making animation.

Teach Ucomp (2005) explained in the application that Flash is a software program that allows you to develop applications. Flash applications can range from complexity in the basic flash animation for interactive program to the software.

Nicholson (2006) explains that Flash is a powerful tool to create anything from simple animations to interactive applications and simulations. It is also suitable to create user interfaces for external data and media streaming. He describes the making of animation with a simple movement as interactive applications, simulations, and for streaming needs, can use the application as Macromedia Flash software used.

Overall Macromedia Flash is a software used to create a simple animation as an interactive application that combines text, images, audio, video, interactive buttons, and so forth.

CONCLUSION

The existence of mobile multimedia as a form of technological progress provides much convenience in the activities studies. The facilities this modern technology, learning becomes easier and more enjoyable. To master the material, students should learn in the classroom, assisted by educators. They can be studied independently by utilizing a wide range of existing multimedia like a) Tutorial; b) Drill and Practice; c) Simulation; d) Trial or Experimental; and e) Games. Various facilities are expected to increase learning over the years.

REFERENCES

Bates, A.W.T. (1995). *Technology of Open Learning And Distance Education*. New York: Tj Press Ltd.

Finkelstein, Ellen., Leete, Gurdy. (2006). *Macromedia Flash 8 for Dummies*. Indiana: Wiley.

Irawan. (2009). *Dictionary of Computers For The Layman's Terms*. Palembang: Maxikom.

Latham, Annabel. Keeley Crockett, David Mclean, Dan Bruce Edmonds In Proceedings of International Conference In Shanghai, China, December 2010, Advances In Web-Based Learning Icwl 2010. Berlin: Springer,. E-Book.

Miarso, Yusufhadi. (2004). *Sowing Seeds Technology Education*. Jakarta: Prenada Media.

Munir. (2008). *Curriculum-Based Information and Communications Technology*. Bandung: Alfabeta.

ISBN 978-602-73030-1-0

Nicholson, Sean. (2006). *Using Macromedia Studio 8: The Only Studio 8 Book You Need.* Indiana: Que Publishing.

O'Bannon, Blanche W. And Kathleen Puckett. (2010). *Preparing To Use Technology: A Practical Guide To Curriculum Integration*. Boston: Pearson.

Rapo, Andrew., Michael, Alex. (2006). *Understanding Macromedia Flash 8 ActionScript 2: Basic Techniques for Creatives.* Burlington: Focal Press.

Sawyer, Stacey and Brian Williams. (2003). *Using Information Technology*. New York: Mcgraw-Hill.

Sharon, Smaldino, E, et al. (2011). *Learning Technology And Media For Learning*, Translated By Arif Rahman From Instructional Technology And Media For Learning. Jakarta: Kencana Prenada Media Group.

Suyanto, M. (2005). *Multimedia Tools To Increase Competitive Advantage*. Yogyakarta: Andi.

TeachUcomp. (2005). *Mastering Flash: Made Easy.* Delhi: TeachUcomp. Inc.

Valacich, Joe and Christoph Schneider. (2012). *Information Systems Today: Managing In The Digital World*. London: Pearson.

Vaughan, Tay. (2006). Multimedia Making It Work Edition 6. Yogyakarta: Andi Offset.

Vaughan, Tay. (2004). *Multimedia: Making It Work, Sixth Edition*. Mcgraw-Hill Technology Education.

Wafik Khoiri, Rochmad Rochmad, Adi Nur Cahyono. (2013). Problem Based Learning Multimedia Assisted In Mathematics Learning Ability To Enhance Creative Thinking. *Unnes Journal mathematic Education: Vol 2, No. 1.*

Wahyudin, Sutikno, Dan A. Isa. (2010). Multimedia Assisted Learning Effectiveness Using Guided Inquiry Method To Improve Student Interests And Understanding. *Journal of Physical Education, Vol. 6,* (pp. 58-62).

THE EFFECTIVENESS OF MULTIMEDIA LEARNING IN THE COURSE ANDRAGOGY

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Abstract

This study aims to determine the effectiveness of the use of multimedia learning in the course Andragogy. The research sample consisted of (52) students were distributed in two groups: the experimental group (n = 26) were taught using instructional media and the control group (n = 26) was taught by conventional methods. The results showed that the effectiveness of the use of multimedia learning on learning outcomes of the course Andragogy. Effectiveness referred to in this research is the success of a business that is designed to engage students actively and independently in learning.

Keywords: effectiveness; multimedia learning, andragogy.

INTRODUCTION

The development of Science and Technology in education is characterized by the development of learning multimedia. Ampa (2015) states that multimedia are the use of computers to create and combine text, graphics, audio, and video that allows users to interact, create and communicate. Interactive multimedia means the interaction between the user and the program or media. Jean Piaget once wrote, "Playing is the answer to the question: how something new is happening?" When we give it a chance and give time for the child to play alone then we must ensure the development of their curiosity, imagination, and creativity (Elkind, 2008). Until recently in human history, there is not much focus on adult learning. Andragogy is defined as "the art and science of helping adults learn, in contrast to pedagogy as the art and science of teaching children" Chan (2010). According to Chan (2010) view of knowledge of adult's education based on six main assumptions:

1. Self-concept: adult learners who are independent, autonomous, and independent.
2. Role of Experience: Repository adult experience is a rich resource for learning. Adults tend to learn by drawing on their previous experience.
3. Readiness to Learn: Adults are likely ready to learn what they believe they need to know.
4. Orientation Learning: Adult learning for immediate application than for the purposes of the future. Their learning orientation problem-centered, task-oriented, and life-focused.
5. Internal motivation: Adults are motivated more internal than external.
6. Need to Know: Adults need to know the value of learning and why they need to learn.

Research Purposes

This study aims to determine effectiveness of the utility multimedia learning in the course Andragogy. As a comparison, it is compared with conventional approaches. So that the findings of these studies will confirm or deny whether educational games generate positive learning behavior and motivation is high, so it is

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recommended in order to improve learning outcomes, as well as students can be creative and independent.

METHOD

This research uses experimental approach, where the number of respondents involved in this study was 52 students. Where class experiments using instructional media and class comparison (control group) using conventional approaches. Methods of data collection in this study using a test method to determine student results. This research is quantitative; the technique of data analysis used in this study is technique of statistical t-test (t-test).

Research Design

Table 1: Research Design

X	Learning by using multimedia lesson	Lecturing
Y	Learning result by using multimedia lesson	Result of the model multimedia

RESULTS AND DISCUSSION

Calculation of average and t-test calculation as follows:

Table 2: Calculation of average

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
experiment	84.04	26	4.005	.785
control	72.69	26	6.361	1.247

T-test calculation as follows:

Table 3: Calculation of T-test

Learning Result	Mean	SD	P-value sig 2- tailed	Value-t	N
Experiment	84.04	4.005	0,000	7.36	26
Control	72.69	6.361			26

Based on the above calculation, resulted that the average value at the control class is 72.69, while the experimental class at 84.04. While the t-test value at the effectiveness test is 7.4. While the t-table value for n by 26 is 2.06.

DISCUSSION

Based on the results of data management and data analysis, there is the effectiveness of learning outcomes at the andragogy course using instructional media. The treatment of experimental class and control class in tests found that the positive impact of learning andragogy using instructional media. The effectiveness can be seen from the liveliness and independence and creativity of students.

This can be happen due to learning by using multimedia learning can motivate students to learn the material that is given without any can cooperate together to complete the task.

CONCLUSION

Based on the results of research on Andragogy course in the department of educational technology with learning educational games can be concluded there is the effectiveness of the learning outcomes of students using educational games in the Andragogy course compared to using lecturing learning model, it is proven in the test of the hypothesis with equality test average where the price of "t" count of 7.4> 2.06 "t" table with a significant level of 5%.

REFERENCES

Ampa, A. T. (2015). *The Implementation of Interactive Multimedia Learning Materials in Teaching Listening Skills*. Canadian Center of Science and Education.

SangChan. (2010). Applications of Andragogy in Multi-Disciplined Teaching and Learning. *Journal of Adult Education.*

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NEEDS ASSESSMENT FOR ICT BASED LEARNING SMK IN GARUT

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Abstract

The use of ICT has been applied starting from basic education, middle, to the college. Advances in information technology and communications are considered having a positive impact in the world of education and provide significant changes. Paradigm currently organized learning-oriented to make ICT as tools/media learning. Needs assessment undertaken to evaluate the planning of programs that have been implemented and to improve program planning further relates to the learning process (design, development, utilization, management, and evaluation) based ICT SMK in Garut city. This study was a descriptive study involving 226 respondents consisting of students and teachers. This study used an observation, several interviews, and questionnaires for teachers and questionnaires for students. Implementation of 58 teachers teaching data obtained by 13 teachers (22.4%) online and 45 teachers (77.6%) conventional (offline). The response of students in ICT-based learning, students are generally very amenable to online based learning (web based learning) from 168 students responded strongly agreed to 85.1%. Competence of teachers in the development of ICT (web based learning) needs to be improved. The importance of the implementation of teacher training as improving the quality of teacher competencies expected of competence to be able to organize ICT-based or assisted learning. Making the school as a learning organization (learning organization) in which members continually improve the capacity of individuals (teachers) as well as attempting to learn together, share knowledge or skill in the use of ICT.

Keywords: Needs Assessment, ICT Based Learning

INTRODUCTION

Background

In the current era of globalization there has been a progress Information and Communication Technology (ICT) is growing very rapidly. The use of ICT has been applied starting from basic education, middle, to the college. In the world of education, especially learning the development of information and communication technologies beginning to be felt having a positive impact for the development of information and communication technology education began to show significant changes.

Needs analysis is the activities that are important in designing learning. This is consistent with design goals developed to help complete the learning needs of students and teachers need to teach embodied interaction in the learning process. Instructional design that begins with a study of needs allows results can be used optimally by the individual who needs related to ICT based learning. Paradigm currently organized learning-oriented to make ICT as tools/media learning. Learning resource centers on a teacher (teacher centered) raises the problem of low ability learners in construct own knowledge.

One way to overcome the above problems, namely a needs analysis or needs assessment. Learning needs analysis in this research is done using the technique needs assessment. Needs assessment is a technique to understand the problems of performance (performance) before trying to make a solution, which is also called a preliminary analysis. Needs assessment is undertaken to evaluate the planning of programs that have been implemented and to improve planning future programs. John Mc Neil (Sanjaya, 2010: 92) also said that the needs assessment is a cycle that is integral to program development, implementation and evaluation.

Based on description above authors believe that using a needs assessment, teachers will be more aware of the factors relating to the learning process (design, development, utilization, management, and evaluation) based ICT SMK in Garut.

Problem Formulation

Based on the background described the issues raised in this study involve what are the factors needed ICT based learning SMK in Garut?

a. How ICT based learning SMK in Garut?
b. Is there a gap between the learning processes in the classroom with the expected learning process?
c. What caused the gap between the learning processes in the field with the expected learning process in ICT based learning?
d. Factors that are needed in the learning activities to bridge the gap between the learning process in the field with the expected learning process?
e. What are the necessary recommendations in bridging the gap between the learning processes in the field with the expected learning process?

Research Objectives

The aim of this study was to identify factors required of teachers in ICT based learning.

Benefits

The benefits of this research are as follows:

a. Provide information about factors that needed teachers in the design, development, utilization, management and learning evaluation.
b. Provide recommendations on addressing the needs of ICT based learning.

LITERATURE REVIEW

Needs Assessment

Seels and Glasgow (Wina 2010: 92) needs assessment defined process of collecting information about the gaps and determine the priority of the gap to be solved. Unsuitable conditions that occur in the field are considered as a major problem that needs to be addressed. In accordance with the expression Stufflebeam, et al., (1985: 5),

> "The first approach identified by Stufflebeam is the discrepancy view; a need is a discrepancy or gap between measures or perceptions of desired performance and observed or actual performance and herein lies a major potential problem."

Stufflebeam, et al., (1985: 18) describes the study design needs assessment as follows:

Table 1: The Stages Activities In Needs Assessment

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Phase Activity	Aspect
A. Preparation	1. Define key of the needs assessment proposed.
	2. Provide study
	3. Make an initial estimate of the required information from clients and audience.
	4. Provide ongoing political and security guarantees.
	5. Determine the characteristics of the subjects concern.
	6. Identify variables that concern.
	7. Make the formulation of the general design of the study.
	8. Develop a management plan.
	9. Summarize the formal agreement in determining the needed assessment.
B. Implementation	1. Obtain the required of information.
	2. Collect data
	3. Analyze and synthesis of data
	4. Findings reports
C. Application	1. The reported benefits of study
	2. Applying conclusions and projections

ICT in Learning

Information and communication technology includes two aspects: information technology and communication technology. Information technology covering all matters relating to process, use as a tool, manipulation, and management of information. While communication technology is everything associated with the use of tools to process and transfer data from one device to another. Information and communication technology is the study or use of electronic equipment, especially computers, to store, analyze and distribute any information, including words, numbers and pictures (Abdul Kadir, 2003: 13). Which included this technology are:

1. The computer technology, both hardware and software.
2. Multimedia technology, such as digital cameras, video cameras, sound player, video player.
3. Telecommunications technology, telephones, cellular phones, facsimile.
4. Computer network technology, both hardware (LAN, Internet, Wi-Fi), as well as supporting software (network application) such as the web, e-mail, HTML, Java, PHP, and database applications.

Strategic use of ICT in the study include: (1) ICT as a tool or medium of learning, (2) ICT as a means/place of learning, (3) ICT as a learning resource, and (4) ICT as a means of enhancing professionalism.

METHODS

Research Methodology

This research uses descriptive method with quantitative approach. Arikunto (2006: 239) descriptive research does not require the administration to a treatment or control. Descriptive study was not intended to examine the specific hypothesis but only describe the "what" of a variable, symptoms or conditions. Descriptive researches are trying to find the right description and enough of all the activities,

objects, processes, and people. Descriptive research the facts relating to the collection, identification, and predict relationships within and between variables (Basuki, 2006:110).

The research was conducted by taking locations in five vocational schools in the city of Garut. The data collection is done by asking questions, conduct interviews with respondents and observation. Ideal standard preparation derived from expert interviews.

Instrument

To collect data in this study used instruments as follows:

a. Format observation of the student performance during learning;
b. Format observation of the teacher performance during learning;
c. Guidance teacher interviews and questionnaires;
d. Student questionnaire that is used to supplement the data in an effort reveals students in the learning process.

The procedures in this study are presented below:

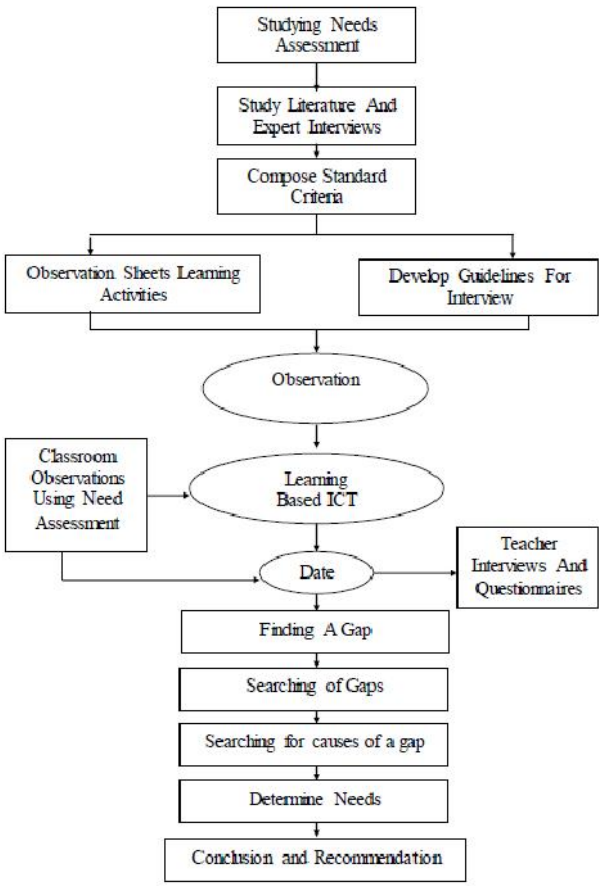

Figure 1: Flow Research

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RESULTS

The data sources were respondents in this study consisted of teachers and students. The number of respondents from 5 vocational schools in the city of Garut are 226 consisting of 58 teachers and 168 students.

Table 2: Total Respondents

SMK	Frekuency	Percent (%)
SMK 1	48	21.2
SMK 2	44	19.5
SMK 3	46	20.3
SMK 4	45	20
SMK 5	43	19
Amount	226	100

The use of ICT in vocational Garut city is divided into two categories: a model-based learning online and offline. Sources of data obtained from interviews and observations of teachers. On the implementation of the teaching of 58 teachers gained as much data as 13 teachers (22.4%) online and 45 teachers (77.6%) in offline. Quantitative data are presented as follows;

Table 3: Teaching Activities

SMK	Responden	Teaching		Percent (%)	
		Online	Offline	Online	Offline
SMK 1	**13**	4	9	30.8	69.2
SMK 2	**12**	5	7	41.7	58.3
SMK 3	**11**	2	9	18.2	81.8
SMK 4	**10**	1	9	10	90
SMK 5	**12**	1	11	8.3	91.7
Amount	**58**	**13**	**45**	**22.4**	**77.6**

Infrastructures which are available relating to the use of ICT for learning 5 SMK Garut generally was very adequate. The data were obtained as follows;

Table 4: Infrastructure ICT

SMK	Laboratorium Komputer	Internet Access	Notebook	Projector
SMK 1	✓	✓	✓	✓
SMK 2	✓	✓	✓	✓
SMK 3	✓	✓	✓	✓
SMK 4	✓	-	✓	✓
SMK 5	✓	-	✓	✓

With regard to the response of students in ICT based learning, commonly are students generally very amenable to online based learning (web based learning). Source data from 168 students responded strongly agreed (85.1%), agree (7.8%) and disagree (7.1%). The following are the responses of students to the web-based learning;

Table 5: Response Web Based Learning

Student	Frequency	Web Based Learning		
		Strongly Agree	Agree	Disagree
SMK 1	35	30	4	1
SMK 2	32	27	5	-
SMK 3	35	30	1	4
SMK 4	35	28	3	4
SMK 5	31	28	-	3
Amount	**168**	**143**	**13**	**12**
Percent		**85.1%**	**7.8%**	**7.1%**

Implementation of ICT

Utilization of ICT in learning in vocational Garut are in emerging of stage and applying. It is characterized by the availability of ICT infrastructure and understanding of the contribution and efforts of teachers to apply ICT in learning contexts. Implementation of ICT implemented in 5 vocational schools in the town of Garut can be explained as follows;

Design

From the interview most teachers plan learning implementation. An understanding of the principles of learning need to be understood and mastered by teachers in order to create a conductive learning so that learning objectives can be achieved effectively and efficiently. There are twelve principles of learning in learning to be a concern of the designers of learning according Filbeck cited Suparman (2001).

In instructional design with respect to the application of ICT has been based on prior knowledge of learners in using information and communication technology.

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Identification of the initial capabilities of these students is done by asking questions such as questionnaires and direct observation and students' own skills in using information and communication technology.

Planning learning activities aligned with the domain to be achieved. From interviews with teachers obtained information that most of the learning objectives included in the cognitive and psychomotor learners.

Development

From interviews to the teacher most of the information obtained by the media developed is a computer-based media. Computer-based media includes PowerPoint presentations and websites (blogs and e-learning). The development of ICT in the learning-based learning is divided into online and offline. On the implementation of the teaching of 58 teachers gained as much data as 13 teachers (22.4%) online and 45 teachers (77.6%) of conventional learning (face to face). The high execution conventional learning (face to face) due to the preparation of teaching material that is more practical than the online-based learning (web based learning).

A limited ability in developing web-based learning. The importance of the implementation of teacher training as improving the quality of teachers will have meaning and contribute to the quality of education. Suyanto (2001: 8) that during the professional capabilities of teachers could not reach the ideal level, the teacher should receive ongoing training. In this case of course competencies expected of competence to be able to organize ICT-based assisted learning or to achieve the learning objectives that have been set.

The importance of school as a learning organization (learning organization) is to increase the capacity of individuals (teachers). Senge (1994) organization learning is an organization where members continually improve its capacity to create new thought patterns by allowing the development of creative aspirations and where people constantly seek to learn together.

Utilization

Infrastructure available in vocational Garut strongly supports the use of ICT for learning. From interviews obtained information that most teachers utilize ICT (computer) as a teaching aid.

Learning to use the internet provides traction for learners in the motivation to learn. From the questions in the form of a questionnaire given to 168 students obtained the data for 85.1% said it agreed to the use of the internet in learning.

Utilization of ICT (smart phone) can be used as an alternative option in addition to the computer. M-learning is a new paradigm in the world of learning by using a smart phone. This model appears to respond to the development of information and communication technology, especially information technology and mobile communications. Mobile communication is one of the devices attached to everyday life as an actor learning as teachers and students.

Management

Management includes all the equipment and supplies that are directly used ICT and support in the process of education/learning. Destination management service provides professionals in the field of educational facilities within the framework of the implementation of the educational process effectively and efficiently.

From interviews, generally ICT management in the town of Garut realized their vocational coordinator who is responsible for ICT equipment and fittings. Planning and procurement of ICT equipment is based on the needs proposed by the teacher. However, ICT management mechanism has not gone well, it is marked absence of inventory, record keeping, and maintenance on the use of ICT.

Evaluation

Evaluation in ICT-based learning includes formative and summative evaluation. The main function of the formative evaluation is to gather data/information regarding the strengths and weaknesses in the improvement of the learning program. Furthermore summative evaluation aims to determine the outcome or level of success on the use of ICT in learning.

From the results of interviews with teachers obtained information most teachers only carry out summative evaluation in order to determine the level of success. The learning processes of students are taken as an indicator of the success of the use of ICT in learning. Formative evaluation is not usually performed by teachers due to lack of expert (expert) to provide information regarding the improvement of the learning program.

Overall evaluation ICT based learning in SMK Garut city has not been implemented optimally.

CONCLUSION

ICT Based Learning

Utilization of ICT in learning in vocational Garut city is divided into two categories: a model-based learning online and offline. Availability of adequate infrastructure in the town of Garut SMK provides an opportunity for teachers in the use of ICT in learning. Learning to use the internet provides traction for learners in the motivation to learn. Utilization of ICT (smart phone) can be used as an alternative option in addition to the computer. Management and evaluation of the use of ICT has not been implemented optimally.

Problems

- An understanding of learning principles needs to be understood and controlled by the teacher.
- Competence of teachers in the development of ICT (web based learning).
- Manage and evaluate the use of ICT has not been implemented optimally.

Solutions

Based on the problem that emerged in this study, while the solution could be as follows:

a. Preparation of lesson plan based on the principles of learning.
b. The training of teachers in an effort to increase the competence of teachers in the use of ICT.
c. Making the school as a learning organization (learning organization). Organization where in members are continuously improving the capacity of individuals (teachers) as well as attempting to learn together, share knowledge or skill in the use of ICT.

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REFERENCES

AECT. (1977). *The Definition of Educational Technology*. Washington DC: AECT

Ariani, Niken. (2010). *Pembelajaran Multimedia di Sekolah*. Jakarta: Prestasi Pustaka.

Darmawan, D., (2012*). Inovasi Pendidikan*. Bandung PT Remaja Rosdakarya

_____., (2012*). Teknologi Pembelajaran*. Bandung: PT Remaja RosdaKarya

_____., (2013).*Teknologi Pendidikan*. Bandung: PT Remaja Rosda Karya

Hamalik, O. (2010). *Proses Belajar Mengajar*. Bandung: Bumi Aksara.

Heinich, et al. (1996). *Instructional Media and Technologies for Learning*. New Jersey: Printice-Hall, Inc.

Lockheed, M. E., and Hanushek, E. A. (1996). Concepts of Educational Efficiency and Effectiveness. *International Encyclopedia of Educational Technology*. New York: Pergamon.

Miarso, Yusuf Hadi. (1987). *Landasan Falsafah dan Teori Teknologi Pendidikan*. Jakarta: Fakultas Pasca Sarjana UNJ.

Reiser, Robert A., & Dempsey, John V. (2002). *Trends and Issues in Instructional Design and Technology*. New Jersey: Pearson Education, Inc.

Smaldino, E. Sharon., et al. (2008). *Instructional Technology and Media for Learning*. Upper Saddle River, New Jersey Columbus, Ohio. Ninth Edition.

Sanjaya, Wina. (2009). *Kurikulum dan Pembelajaran*. Jakarta: Kencana Prenada Media Group.

Sardiman. (2007). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: Rajawali Pers.

Suparman, Atwi. (2001). *Desain Intruksional*. Jakarta: Pengembangan Aktivitas Intruksional, Dirjendikti, Depdiknas.

Senge, Peter M. (1994). *The Fifth Discipline: The Art And Practice Of The Learning Organization*. Doubleday, a division of Bantam Doubleday Dell Publishing Group, Inc. United States of America.

Sugiyono. (2010). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.

_____. (2011). *Metode Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung, Alfabeta.

Surya, Mochamad. (2004). *Psikologi Pembelajaran dan Pengajaran*. Bandung: Pustaka Bani Quraisy.

Sulistyo-Basuki. (2006). *Metode Penelitian*. Jakarta: Wedatama Widya Sastra dan Fakultas Ilmu Pengetahuan Budaya Universitas Indonesia.

Suyanto. (2001). *Refleksi dan Reformasi Pendidikan di Indonesia Memasuki Milenium III*. Yogyakarta: Adicita.

UNESCO. (2004). *Integrating ICTs in Education: Lessons Learned*. Bangkok: UNESCO PBL.

_____. (2004). *Developing and Using Indicators of ICT Use in Education*. Bangkok: UNESCO PBL.

Warsita, Bambang. (2008). *Teknologi Pembelajaran Landasan dan Aplikasinya*. Jakarta: Rineka Cipta.

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IMPLEMENTATION OF WEB 3.0 TO CREATING ONLINE MARKETING TOOLS IN LEARNING ENTREPRENEURSHIP

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Abstract

The 21st Century brought changes in all areas including entrepreneurial learning. This further strengthens the learning model of Teaching Learning Center to Student Learning Center, so that the teacher is the facilitator. Web was instrumental in changing educational technology. Since 20 years ago from web start is used for a small group of scientists to evolve into media interaction, participation, and collaboration. Evolution of ranging stages web web 1.0, web 2.0, web 3.0 also affect learning model. Web 3.0 was created in 2006, it is a rich information web, interactive and collaborative. It allows users to get information about anything in real time. One of the characteristics of Web 3.0 is the use of social networking. Social networking is one of the online marketing tools that can be used in entrepreneurship education. Like any form of marketing, the starting point should be set marketing objectives, then identifies communities where they often hang out on the Internet, then choose the right online marketing tools to reach target consumers.

Keywords: Web 3.0, E-Learning, Social Network Entrepreneur,Marketing Online Tools

INTRODUCTION

Changes in technology in the 21st century brought changes in all fields including entrepreneurial learning. Students trends in the use of technology both in school and outside of school. They use technology to support learning and lifestyle. Students believe that the power of technology to enrich their learning experience. They have ideas about the future, including preparing for the competitive job market (Solomon, 2007).

Web was instrumental in changing technology in education. Since 20 years ago from web start is used for a small group of scientists to evolve into media interaction, participation, and collaboration. Evolution of ranging stages web web 1.0, web 2.0, 3.0 wen also affect learning model (Murugesan, 2010).

Web 3.0 was created in 2006, is an information-rich web, interactive and collaborative. It allows users to get information about anything in real time (Murugesan, 2010). Social networking is one of the characteristics of Web 3.0. Once the importance of social networking today, it is evident from Facebook added over 200 million users in less than a year, on Twitter there are 50 million tweets per day, there are two to three new Twitter account is activated every second. There are more than 2 million blogs, 54 percent of bloggers post or tweet daily. YouTube is the second largest search engine in the world (Crane, 2012).

One of the characteristics of Web 3.0 is the use of social networking (Tasner, 2010). Social networking is one of the online marketing tools that can be used in learning entrepreneurship.

LITERATURE REVIEW

Evolution of Web 1.0, 2.0, 3.0

Since its inception 20 years ago, the Web continues to grow significantly and the future is still growing. The Web has evolved from its humble beginnings as a media publishing only intended for a small group of scientists then turned to the media interaction, participation, and collaboration. Web starting from the stage of evolution of Web 1.0 (Web traditional), Web 2.0, Web 3.0. For Web 1.0 is characterized in that a passive web, users only read the contents of a single site but were unable to add additional information to the Web. While Web 2.0 has begun to shift towards environmental reading and writing, as users themselves can actively participate in the creation and management of content. While Web 3.0 has gone further and more accurately understand or can understand the desire of the user and shows the user's information needs. Web 3.0 is often called the semantic web, web 3D, web media centric, pervasive web, web database (Murugesan, 2010) :

- Web semantics. Provide a better connection between blocks of information, Semantic Web facilitates software applications that can anticipate what you really want to know or do.
- 3D Web. It allows you to present a three-dimensional image on the Web can thus make cyberspace.
- Web Media Centric. This refers to the sophistication, is a rich media information.
- Pervasive Web. Internet and the Web can be more widely used because many accessible via gadgets and household items such as TVs, refrigerators, etc.
- Database as a Web page. We can access and manage the database as a Web page is open and easy to use.

Although no conclusions regarding web 3.0 standard (Watson, 2009) but it can be explained on the characteristics of web 3.0 (Tasner, 2010), namely:

- Microblogging is the ability to share your thoughts with a set number of characters.
- The reality of the virtual world is a user visits to interact with others from around the world in 3-D setting.
- Customization / personalization allows visitors to create a more personal experience.
- Utilize Mobile. The number of mobile phones that have much larger than those using PCs.
- Interaction, collaboration, and make changes in real time is often called social networking.

The Benefits of Web 3.0 in Education Entrepreneurship

Entrepreneurship is about adopting a mindset and belief systems that are always ways to use creativity, passion, and vision inspired to create value or take something that already exists and make it better (Marta Peris, 2016). Average consumers are likely to use social networking (Jon Reed, 2012).

So that social networking is one of the online marketing tools that can be used in entrepreneurship education. One of the characteristics of Web 3.0 is the use of social networking (Tasner, 2010). Social networks are websites on the Internet that

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brings people together at the location, central to talk, gossip, share ideas, activities and interests, make new friends, and much more. Social network includes sites such as blogs, Twitter, Facebook, My Space and YouTube (Crane, 2012)

Online Marketing Tools

Online marketing tools is an important planning tool to help you think strategically about marketing (Jon Reed, 2012). There are nearly two billion people online. Some of them are potential customers. Given the amount of time people spend on the Internet, especially on social sites such as Facebook and Twitter. The Internet has brought enormous benefits to the way we market our businesses. Here are some reasons to use online marketing tools (Jon Reed, 2012):

- Affordable: Because it is more expensive than traditional marketing.
- Effective: People spend more time online and using online marketing to reach the markets in which they are located.
- Authentic: Tools such as social networking, blogging and personal media. All can be used as a tool to market products or services offered.

Implementation of Web 3.0 to Creating Online Marketing Tools in Learning Entrepreneurship

Web 3.0 is a web to understand the information, integrating information from different sources, and offers flexibility in publishing information for both readers humans and other software systems (Watson, 2009). Like any form of marketing, the starting point should be set marketing objectives, then identifies communities where they often hang out on the Internet, then choose the right online marketing tools to achieve them (Jon Reed, 2012).

Figure 1: Online Marketing Tools in learning Entrepreneurship

From Figure 1, it can be explained how are creating online marketing tools for entrepreneurial learning in the field of product or service. That can be explained first by creating websites or blogs such as using blogspot. In improving SEO to bookmarking using Detikindo.com, while applications for mobile phones using SMS, whatsapp, and Massenger Blackberry (BBM). In market place using kaskus and OLX, while the search engine using google and youtube. For promotion can be done by using social networks such as Facebook and Twitter.

CONCLUSIONS

In this 21st century web was instrumental in changing technology included in the entrepreneurial learning. This further strengthens the learning model of Teaching Learning Center to Student Learning Center, so that the teacher is the facilitator. Evolution of ranging stages web web 1.0, web 2.0, 3.0 wen it also affect learning model. Web 3.0 was created in 2006,it is a rich information web, interactive and collaborative. Web 3.0 is often called the semantic web, web 3D, web media centric, pervasive web, web database. Social networking is one of the characteristics of Web 3.0. Social networking is one of the online marketing tools that can be used in entrepreneurship education. Online marketing tools is an important planning tool to help you think strategically about marketing. Like any form of marketing, the starting point should be set marketing objectives, then identifies communities where they often hang out on the Internet, then choose the right online marketing tools to reach target consumers.

REFERENCES

Crane, Beverly E. 2012. *Using Web 2.0 and Social Networking Tools in The K-12*

Classroom. Chicago. Neal-Schuman

Creighton, Peggy Milam. 2012. *The secret reasons why teachers are not using web 2.0 tools and what school librarians can do about it*. Santa Barbara, California. ABC CLIO

Isaias, Pedro, Dirk Ifenthaler, Kinshuk, Demetrios G. Sampson, J. Michael Spector(Eds). 2012. *Towards Learning and Instruction in Web 3.0 Advances in Cognitive and Educational Psychology*. New York. Springer

Jon Reed, 2012. *Get Up to Speed with Online Marketing.* New Jersey. FT Press

Khaushik, Avinask. 2007. Web Analytics An Hour a day. Indiana, Canada. Wiley Publishing.

Lytras, Miltiadis D. 2009. *Social Web Evolution: Integrating Semantic Applications and Web 2.0 Technologies.* Harsley. Information Science Reference (an imprint of IGI Global)

Murugesan, San. 2010. *Handbook of Research on Web 2.0, 3.0, and X.0:Technologies, Business,and*

Social Applications. Harsley. Information Science Reference (an imprint of IGI Global)

Muorlas, Constantinos, Nikos Tsianos, Panagiotis Germanakos. 2009. *Cognitive and Emotional Processes in Web-Based Education: Integrating Human Factors*

ISBN 978-602-73030-1-0

and Personalization. Harsley. Information Science Reference (an imprint of IGI Global)

Solomon, Gwen, Lyne Schrum. 2007. *Web 2.0 : New Tools, New Schools.*

Washinton. International Society for Technology in Education Washinton.

Tasner, Michael. 2010. *Marketing in the Moment The Practical Guide to Using Web 3.0 Marketing to Reach Your Customers First*. New Jersey. Pearson Education

Watson, Mark. 2009. *Web 3.0 Information Gathering and Processing*. Barkley, California. Apress

THE ECOSYSTEM FRAMEWORK FOR U-LEARNING IMPLEMENTATION THROUGH COURSEWARE DEVELOPMENT AND MANAGEMENT

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Abstract

One of the serious problems faced by mostly developing country is a relatively low higher education gross enrolment rate. Several breakthrough programs have been initiated by education practitioners to solve this issue, including the adoption of open education concept through the implementation of e-learning. The issue of e-learning occurred as such approach requires and consumes learning resources that are difficult to acquired and developed. Nowadays, the way of designing online courses have been left behind, replaced by a new emerging concept of ubiquitous learning (u-learning). This emerging 21st century conception lies upon the principle that learning can be done from anywhere, anytime and anyhow - through the utilisation of information and communication technology. The application of u-learning in formal education can be held effectively and efficiently should it is done in a systemic and holistic way. This article proposes a strategic ecosystem framework for effective u-learning implementation. A courseware approach is being selected as a vehicle to conduct learning activities within u-learning environment.

Keywords: online course, e-learning, courseware, u-learning, framework, ecosystem

INTRODUCTION

A good number of studies in u-learning have been conducted by various educational scholars to investigate how u-learning operate in various context of learning. In the context of formal education, the concept of u-learning is being used as a paradigm in developing courseware. Since courseware is only a small part of a larger system, education practitioners should be aware of the ecosystem as a whole. This paper proposes an architectural framework of the u-learning ecosystem implementation through courseware development and management.

This proposed framework is developed by using a synthesis methodology after conducting a series of research, observation, and investigation of u-learning implementation in twelve countries, such as: Australia, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, Singapore, South Africa, Thailand, United States, and Vietnam.

In this study, secondary data are collected from various policy makers and education practitioners in respected countries, while the primary ones are coming from the gatherings where scholars of u-learning studies meet, share, and exchange ideas.

The type of synthesis methodology that is used in this study is framework synthesis (Brunton, et al., 2006; Oliver, et al., 2008). Framework synthesis is based on framework analysis, which was outlined by Pope, Ziebland and Mays (2000), and draws upon the work of Bryman and Burgess (1993) and Miles and Huberman (1984).

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LITERATURE REVIEW

Basically, the concept of u-learning is a continuation of the evolution of "electronic learning" (e-learning) and "mobile learning" (m-learning) – as a consequence of paradigm shift in education from closed to open learning system. U-learning that works on a principle of convenient learning from anywhere, anytime, and anyhow is spawned a variety of innovative learning approaches (Bomsdorf, 2005) - such as collaborative learning, authentic learning, and context-aware learning (Chen et al., 2009). Technological development that gives birth to products like mobile phones, electronic devices (gadgets), cloud computing, wireless tissue, and others become the main promoter of the conception of u-learning (Vladoiu, 2012). Even Ogata, et al., (2008) confirms that the latest technology such as RFID (Radio Frequency Identification) and Augmented Reality drive the development of u-learning concept in education.

U-learning that is strongly influenced by the humanism, cybernetic, and cognitive psychological orientation is built upon two several basic approaches, namely: (i) individual independent exploration of learning by utilising ready to use resources; and (ii) social interaction of various parties that relate to the knowledge being learnt. Yang, Okamoto & Tseng (2008) identifies eight characteristics of u-learning environment, which are: (i) mobility; (ii) location awareness; (iii) interoperability; (iv) seamlessness; (v) situation awareness; (vi) social awareness'; (vii) adaptability; and (viii) pervasiveness.

In essence, the application of u-learning has transformed the way people learn things (Cope & Kalantzis, 2009). Tan, et al., (2012) characterizes the u-learning as a system that has the characteristics of permanency, accessibility, immediacy, interactivity, situation, calmness, adaptability, seamlessness, and immersion (Liu, 2009). Because it is supported by information and communication technologies, the learners can easily move from one place to another, across space and time, without having to fear a disruption of the activities of the learning process. In short, u-learning works on top of three domain platforms: learning collaborators, learning contents, and learning services (Chang & Sheu, 2002; Cheng, et al., 2005; Haruo, et al., 2003).

DISCUSSION

Essentially, there are eight (8) major components of the u-learning framework that constitutes a holistic ecosystem, which are: (i) learners; (ii) courseware development and instructional design; (iii) superstructure; (iv) governance; (v) management; (vi) technology; (vii) resources; and (viii) space environment (see Figure 1: The INDRAJIT's Ecosystem Framework for U-Learning Implementation). The following is a brief explanation of each component in the context of the implementation of open courseware based u -learning.

Learners

The canter of learning process lies on the learners. They are the controllers and navigators of u-learning activities. As main component, learners are directly related to the courseware they take in the study program. They are also the ones who operate and utilise information technology to select learning materials and resources from anywhere, anytime, and anyhow. Within u-learning environment, learners "talk"

and interact with the world of knowledge intensively by technological devices as learning tools.

Most practitioners are facing paradoxical phenomena shaped by the nature of formal education and ubiquitous approach of learning - which is perceived to be more informal. With this regards, instructional design plays crucial role to handle such issue. Laroussi (2004) introduced the term pedagogical socio-cognitive paradigms and distributed cognition to describe the approaches and paradigms used in implementing u-learning. In this view, the learning process is designed to enable a cognitive interaction between learners and their surrounding social environment, through a model of collaborative learning, problem based learning, informal and ad-hoc learning, authentic learning, and so forth.

The fundamental difference between u-learning and its predecessors such as e-learning and m-learning lies in how technology is able to predict information, knowledge and contexts required by learners (Hwang, Tsai, & Yang, 2008). By utilising smart yet complex algorithms, a context-aware u-learning system can study the habits and behaviour of learners, as well as the characteristics of associated surrounding environment. This capability makes the system being able to predict what resources and learning materials are needed. This implies that in terms of pedagogy and design instructional, learners are conditioned to perform their own learning in an independent contextual way. Learners are welcome to gather as much learning portfolio as possible, that are considered as an integral part of achieving learning objectives or outcomes that have been set. In a context where a course is designed to integrate face-to-face with u-learning model, a concept of either hybrid learning (h-learning) or "blended learning" is introduced (Zhang, 2005). Special characteristics of u-learning concept that greatly affect instructional design model are: omnipresence, context customization, interactivity, self-directed learning, and perceived enjoyment (Jung, 2014).

Courseware Development and Instructional Design

The term “courseware" is being used to represent the packages or modules of lectures in the form of digital/electronic, which is delivered through online learning process as teaching material. Components of such online courses can be essentially translated into four distinct models: (i) Domain Model; (ii) Learning Context and Pedagogy Model; (iii) Learning Resources Model; and Courseware Model (Melia, 2009) – offering a flexible, exciting, and innovative way of learning (Frommann & Tan, 2006). The first adoption of u-learning is done through the implementation of appropriate instructional design approach, which is based on the design of contextual learning model (Vladoiu & Constantinescu, 2011). The design itself is coming from the convergence of formal, non-formal and informal education mode. Basically, the development methodology of open courseware can be categorized into six stages, namely: (i) planning; (ii) design; (iii) development; (ii) application; (v) control; and (vi) assessment/evaluation. And the last domain is superstructure, whose main function is to produce and to run appropriate rules and standards necessary to implement u-learning initiative.

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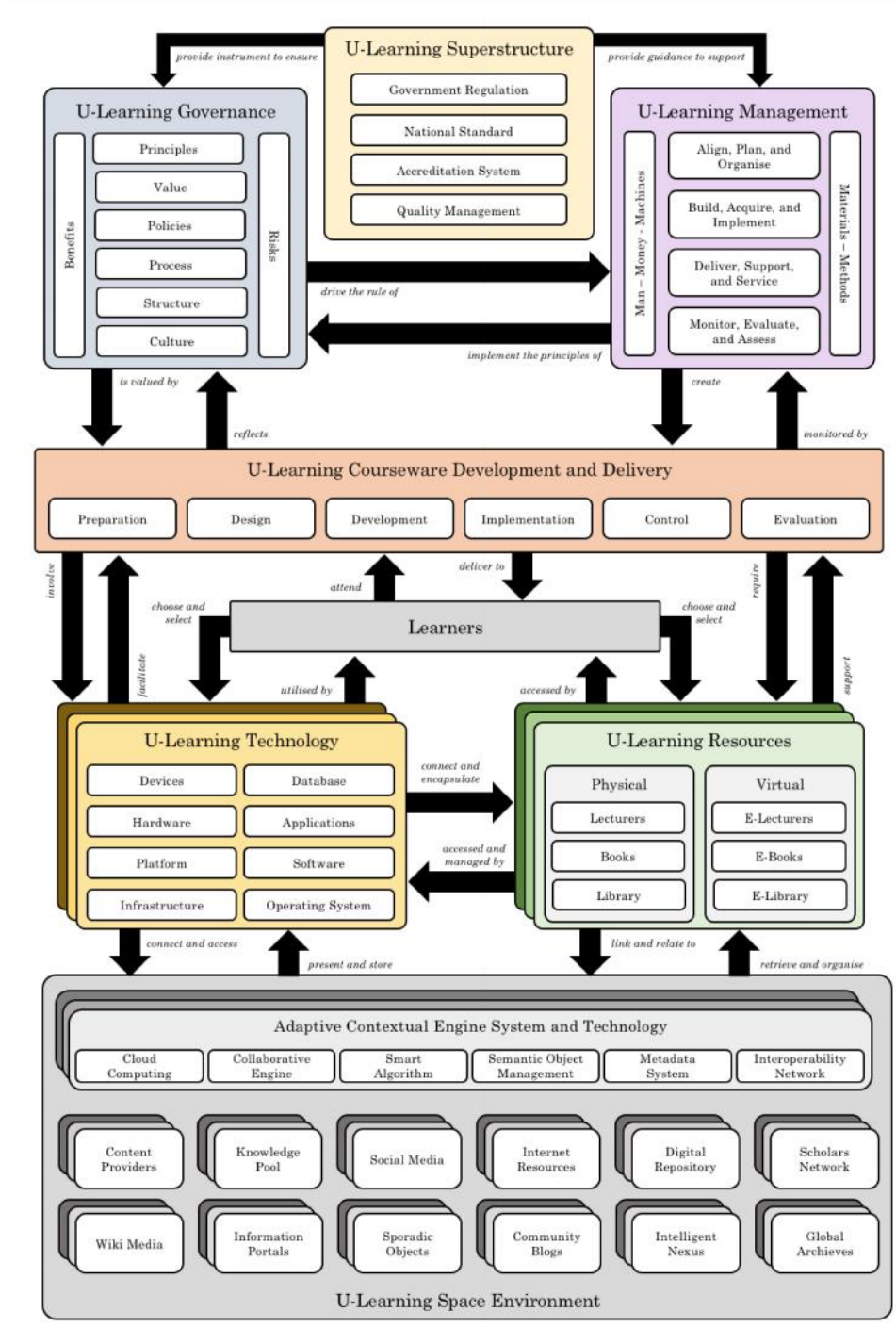

Figure 1: The INDRAJIT's Ecosystem Framework for U-Learning Implementation

By definition, a courseware is a mean for learners to achieve its learning goals (competencies). Therefore, the process of designing online courses, which are integrated with the concept of u -learning, is a very crucial process that should be well undergone by campus. This means that instructional design is the key determinant of either success or failure of the implementation of courseware-based u-learning. In terms of learning outcomes, there should not be a difference between the competencies of learners that are achieved through e-learning program and conventional face-to-face mode. As courseware being implemented in formal higher education environment, any u-learning course shall be designed, constructed, developed, applied and evaluated in a good quality manner.

As formal institution, a college must abide by the philosophy, principles and universal values of education and learning. Regularity within a campus is one of the traits and characteristics of scientific community that must be upheld. Online course or courseware as an entity or a component in the ecosystem is designed and developed through a series of standardized instructional design process. From time to time, the development approach and mechanism of courseware is updated and revised due to the dynamic technological and pedagogical change (Archer, Garrsion & Anderson, 1999). Integrating the concept of u-learning that rests on the freedom of students to choose their own teaching materials from anywhere, anytime, with the conventional pedagogical approach in education haze been a challenge in the field of instructional design (Zinn, 1990). A designer has a responsibility to analyse and to develop coursewares that align with u-learning perspective and paradigm. Understanding u-learning in a holistic way involves a need to understand a broad perspective of the matter, where various components are interconnected, influential, and integrated.

Superstructure

A presence of superstructure that is designed and developed by the government as a regulator should be well orchestrated in u-learning environment. Through laws, regulations, standards, and policies, the government provides guidance for higher education providers to carry out mandated authority in implementing effective, efficient, and well-controlled learning process. The main role of superstructure is to ensure that university is running u-learning initiative in quality. As a formal educational institution, campus operates within systematic higher education environment - as regulated by the government. A learning process that is designed for the students is encapsulated in the form of courses. At the time while e-learning concept is introduced, online courses come to the fore, as a cavity activism of learning where learning resources (faculty and teaching materials) can be accessed by learners located in different place at different time- through the utilisation of information and communication technology (Pankratius & Stucky, 2005).

A good u-learning initiative should be delivered in compliance with standards, such as learning outcomes, learning process, content and materials, lecturers and educators, facilities, evaluation, institution management, and financial cost. In most countries, such initiative should comply with distance education (distance education) regulation, principles, policies, and framework. This distance education standard itself is referring to a number of "good practices", as issued by ISO (International standards Organisation), ITLET (Information Technology for Learning, Education and Training), SC36 (Standards Committee 36), and JTC1 (Joint

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Technology Committee 1). This standard concerns with the implementation of online course materials and electronic/digital material format (Stoica & Ghilic-triggering, 2009).

Governance

Every operator of u-learning should have appropriate instruments to help them implementing the initiative in an effective and efficient way. At the same time, the implementation and management of courseware-based u-learning must stay in tune with the philosophy, values, benefits, and culture of education. This domain confirms that in carrying out its operational activities, the university should be always in harmony with its vision and mission(s). Governance mechanism that is manifested in various forms - such as through the existence of the assembly of trustees, code of ethics, rule of conducts, and corporate values - becomes a strong foundation for campus leadership. Similarly, in designing and implementing u-learning courseware that have a dimension of freedom, openness, independence and freedom, the need to maintain and to value academic practices should be fulfilled. Governance is directly related to the activities of making sure that learning activities are carried out completely in tune with the philosophy of education and the learning itself. Such aspects include principles, rules, policies, mechanism, processes, and culture - whose existence is to ensure that benefits of u-learning far surpass the cost or risk faced by the educators (Baruque & Melo, 2004). In the context of online learning, this aspect is often referred as e-governance (Panda & Swain, 2009).

Management

Basically, universities should apply the right strategy to fulfil their mission and vision through the utilization of resources within their possession. As stipulated by the most regulations or quality standards, only academic institutions who have good reputation and accreditation that can be officially mandated to conduct online courses. These facts bring a meaning that the universities who have been appointed should be able to plan, design, develop, execute, and control the implementation of u-learning that has the same quality with its legacy system. A good management practices should be applied with this regards. Management is a series of activities related to the fulfilment of vision and mission of the organization through u-learning resource utilization. Although classified as a non-profit organization, in this regards, a modern university should work as befits a corporation (Nay, 1995). This is due to the fact that a university is bound by limited resources to achieve its vision and mission(s) proclaimed.

Information and Communication Technology

Technology holds a crucial role in u-learning ecosystem because it becomes a learners medium to touch the virtual arena where knowledge repositories are located. By utilizing various technological components (hardware, software, netware, infoware, etc) through various access tools (computers, devices, gadgets, notebooks, and mobile phones), learners can freely and seamlessly implement learning activities within a ubiquitous environment.

In the context of u-learning, the role of computing technology (computers, information, and communication) is as medium that connects students (learners) with a variety of learning resources through cyber space or internet (Krumm, 2009). A ubiquitous environment is shaped by a wide range of information and communication

technologies, such as hardware (hardware), software (software), network devices (netware), a data storage device/information (infoware), access devices (devices or gadgets), infrastructure telecommunications, and others. In accordance with the concept of ubiquitous that rests on the ability of technology to adapt with learning needs of students, all components of this technology are designed to facilitate adaptive learning (Jones & Jo, 2005). Architecture wise, learners need the tools and the access channels to associate him with any virtual arena of learning. Those tools include desktop computer, notebook, electronic devices (gadgets), digital slate (tablet), and other technology tools (Garg & Goel, 2013).

Learning Resources

Various knowledge needed by learners to achieve targeted competencies is produced by various learning hubs, in both physical and virtual (electronic/digital) forms. Because of its diversity, learners need a variety ways to access them. Technology is a major tool in accessing resources for learning. Learning resources available in campus environment are coming from both physical assets and virtual arena (internet network), which have been packaged in such organized way. U-learning concept assumes that learning resources can come from anywhere, in the shape of physical, electronic, digital, or virtual matters. Any entity has a potential to become source of learning. If conventional learning environment has lecturers, instructors, researchers, books, laboratories, and libraries as a source of learning, in a virtual digital environment, various terms such as e-lecturers, e-books, e-library, and e-laboratory, are introduced (Wiley, 2000). As seen in the architecture, the physical and digital environments jointly form the diverse learning arena connected to each other (Yu, et al., 2014). Learning resources can be located in the territory or perimeter of campus, or off-campus. Learners in this context are considered as content consumers who enjoy the products of content provider, which are produced, packaged, and supplied by content service providers (Sung, 2009).

Learning Arena

Internet and networking technology form a collective pool of data centres and integrate various knowledge sources scattered all over the globe. This giant network contains a wide range of useful knowledge required by learners. Seeing so much data, information, and knowledge that are scattered everywhere and are diverse in formats and characteristics (structured vs. destructor, formal vs. informal, centralized vs. distributed, single vs. multimedia, etc.), it takes a smart engine system to filter relevant knowledge that meet the needs of learners. The virtual arena of learning or Virtual Learning Environments (VLE) is defined as a commonplace in modern teaching and learning context where pedagogical activities are being conducted (Ribs, 2009). VLE itself takes a form of various emerging systems, such as: personal learning environment (Oliver & Liber, 2011), cloud computing environment (Charley, 2010), virtual machine environment (Soror, et al., 2010), dynamic mobile environment (Franco, 2010), and so forth. This virtual learning space has tight interaction with various knowledge sources and repositories available that can be accessed by learners. These systems are operated on the top of u-learning platform that is equipped with smart algorithm and artificial intelligence programs - that enable themselves to filter learning materials that are suitable with the unique needs and characteristics of learners (Byun & Cheverst, 2004).

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CONCLUSION

Moving towards u-learning is not an option, but a must effort for modern campus. The rapid development of information technology, renewal theory and the concept of dynamic education, human characteristics in different generations, and the nature of globalization, are the reasons for such proposition. A higher education institution must respond these challenges by doing transformation in teaching and learning activities - so that the campuses are remain relevant to the circumstances of the modern era. As an organization in formal education environment, universities must have an effective strategy in adopting u-learning concept into learning models. An online course is one of the most appropriate vehicles to start promoting u-learning into the college environment. Through the presence of u-learning online courses that are openly accessible to anyone in need, anytime, and from anywhere, the problem of low higher education gross enrolment rate can be solved. This Strategic Ecosystem Framework for Governing and Managing Open Courseware in Ubiquitous Learning Environment is developed to serve the need of a guide for university leaders who want to implement such initiatives in a holistic and systemic way.

Since this framework is developed after thorough understanding and comprehension of the system in twelve countries only, there might be several components of the ecosystem that remain unnoticed. A further study is recommended to be undertaken to investigate this matter – especially the one that includes European countries that are not used as samples in this research.

REFERENCES

Archer, W., Garrison, R. & Anderson, T. (1999). Adopting Disruptive Technologies in Traditional Universities: Continuing Education as an Incubator for Innovation. *Canadian Journal of University Continuing Education: Vol. 25, No. 1* (pp. 13-30).

Baruqua, L.B. & Melo, R.N. (2004). *Towards a Reference Model for e-Learning Governance*. PUC-RioInf.MCC20.

Bomsdorf, B. (2005). Adaptation of Learning Spaces: Supporting Ubiquitous Learning in Higher Distance Education. *Dagstuhl Seminar Proceedings 05181 - Mobile Computing and Ambient Intelligence: The Challenge of Multimedia*.

Brunton G, Oliver S, Oliver K&Lorenc T. (2006). *A Synthesis of Research Addressing Children's, Young People's and Parents' Views of Walking and Cycling for Transport*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Bryman A. & Burgers R. (1993). *Analysing Qualitative Data*. London: Routledge.

Byun, H.E. (2004). Utilising Context History to Provide Dynamic Adaptations. *Applied Artificial Intelligence: Vol. 18, No. 6* (pp. 533-548).

Cearley, D.W. (2010). *Cloud Computing: Key Initiative.* The 2010 Gartner Initiative.

Chang, C.Y. & Sheu, J.P. (2002). *Design and Implementation of Ad-Hoc Classroom and e-Schoolbag Systems for Ubiquitous Learning*. Paper presented at the IEEE International Workshop on Wireless and Mobile Technologies in Education, August 29-30, Sweden.

Chen, T., et al. (2009). Context-Aware Writing in Ubiquitous Learning Environments. *Research and Practice in Technology Enhanced Learning: Vol. 4, No. 1* (pp. 61–82). World Scientific Publishing Company & Asia-Pacific Society for Computers in Education.

Cheng, et al. (2005). *A Personalised Ubiquitous Education Support Environment by Comparing Learning Instructional*. Paper presented at the 19th International Conference on Advanced Information Networking and Applications, March, 28-30, Tamkang University, Taiwan.

Cope, B. & Kalantzis, M. (2009). Ubiquitous Learning: An Agenda for Educational Transformation. *Proceedings of the 6th International Conference on Networked Learning*.

Franco, C.P. (2010). A Platforma Moodle como Alternativa para uma Educacao Flexivel. In *Revista Educa Online Volume 4-Numero 1*.

Frommann, U. & Tan, T.T.P. *Onn the Didactical Potential of E-Learning Courseware*. L3S Research Center, Hanover, Germany.

Garg, A. & Goel, S. Autonomous Interaction Model in Ubiquitous Learning Systems. *International Journal of Computer Applications: Vol. 70, No. 7, May*.

Haruo, N., Koyoharu, P.H., Yasufumi, K. & Shiho, M. (2003). *Designing Ubiquitous and Universal Learning Situations: Integrating Textbooks and Mobile Devices*. Paper presented at the 19th Annual Conference on Distance Teaching and Learning, August 13-15, Madison Wisconsin, USA.

Hwang, G., Tsai, C. & Yang, S. (2008). Criteria, Strategies and Research Issues of Context-Aware Ubiquitous Learning. *Educational Technology & Society: Vol. 11, No. 2* (pp. 81-91).

Jones, V., & Jo, J.H. (2005). Ubiquitous Learning Environment: an Adaptive Teaching System using Ubiquitous Technology.

Jung. (2014). Ubiquitous Learning: Determinants Impacting Learners Satisfaction and Performance with Smartphones. *Language & Technology: Vol. 18, No. 3* (pp.97-119).

Larose, M. (2004). *Net E-Leaarning Services Based on Mobile and Ubiquitous Computing: Ubi-Learn Project.* INSAT Centre Urban Tunisia and University des Sciences et Technologies de Lille France.

Krumm, J. (2009). *Ubiquitous Computing Fundamentals*. CRC Press, Taylor Francis Group, September Edition.

Liu, T.Y. (2009). A Context-Aware Ubiquitous Learning Environment for Language Listening and Speaking. *Journal of Computer Assisted Learning: Vol. 25, No. 6* (pp.515-527).

Melia, M. (2009). Constraint-Based Validation of Adaptive e-Learning Courseware. *IEEE Transactions on Learning Technologies: Vol.2, No.1, January-March*.

Miles M., & Huberman A. (1984). *Qualitative Data Analysis*. London: Sage.

Nay, I. (1995). From Collegial Academy to the Corporate Enterprise: The Changing Culture of Universities. Schuller, T. (ed). The Changing University? Open University/SRHE, Buckingham.

ISBN 978-602-73030-1-0

Oliver, B., & Liber, O. (2011). Lifelong Learning: The Need for Portable Personal Learning Environments and Supporting Interoperability Standards.

Oliver S, Rees R, Clarke-Jones L, Milne R, Oakley A, Gabbay J, Stein K, Buchanan P & Gyte G. (2008). A Multidimensional Conceptual Framework for Analysing Public Involvement in Health Services Research. Health Expectations 11:72-84.

Ogata, H., et al. (2008). A Framework for Capturing, Sharing, and Comparing Learning Experiences in a Ubiquitous Learning Environment. *Research and Practice in Technology Enhanced Learning: Vol. 3, No. 3* (pp. 297–312). World Scientific Publishing Company & Asia-Pacific Society for Computers in Education.

Panda, B. P., & Swain, D. K. (2009). Effective Communication through E-Governance and E-Learning. *Chinese Librarianship: an International Electronic Journal, 27*.

Pankratius, V., & Stucky, W. Aspect-oriented re-engineering of e-learning courseware. *The Learning Organization: Vol. 12, No. 5* (pp. 457-470). Emerald Group Publishing Limited. Educational Technology & Society, 15 (2), 206-219.

Pope C, Mays N., & Popay J. (2007). *Synthesizing Qualitative and Quantitative Health Evidence: a Guide to Methods*. Maidenhead: Open University Press.

Ribas, E., et al. (2009). *Technologieas Digitais. Um Novo ContextPedagogic na Educacao Basica*. Colabora, Fevereiro.

Soror, A. A., et al. (2010). Automatic Virtual Machine Configuration for Database Workloads. *ACM Trans Database System: Vol. 35, No. 1* (pp. 1-47).

Stoica, M., & Ghilic-Micu, B. (2009). Standards and Costs for Quality Management of E-Learning Services. Quality Management in Services Volume XI(26), June. The Buhcarest Academy of Economic Studies, Romania.

Tan, T., et al. (2012). Educational Affordances of a Ubiquitous Learning Environment in a Natural Science Course.

Vladoiu, M. (2012). Towards Instructional Design of Ubiquitous Learning Environments. Department of Com- puter Science, PG University of Ploiesti, Romania.

Vladoiu, M., & Constantinescu, Z. (2011). U-Learning within a Context-Aware Multiagent Environment. *International Journal of Computer Networks & Communications (IJCNC): Vol.3, No.1, January*.

Wiley, D. A. (2000). Connecting Learning Objects to Instructional Design Theory: A Definition, a Methaphore, and a Taxonomy.

Yang, S. J. H., Okamoto, T. Ve Tseng, S.S. (2008). Context-Aware and Ubiquitous Learning. (Guest Editorial). *Technology & Society: Vol. 11, No.2* (pp. 1-2).

Yu, S., et al. (2014). From Learning Object to Learning Cell: A Resource Organisation Model for Ubiquitous Learning. *Educational Technology & Society: Vol. 18, No. 2* (pp. 206-224).

Zhang, J. (2005). *Hybrid Learning and Ubiquitous Learning*. East China Normal University, Shanghai, China.

Zinn, L. M. (1990). Identifying Your Philosophical Orientation. In M. Gailbraith (Ed.), *Adult Learning Methods* (pp. 39-77). Malabar, FL: Krieger.

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INFORMATION TECHNOLOGY INFRASTRUCTURE SERVICES SUPPORTED E- LEARNING SYSTEM

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Abstract

The success of e-learning system performed on the learning process has been done with the evaluation of the users (teachers and students). There are still arguments about the factors that can be used to evaluate the success of e-learning systems. Need more attention to investigating the role of infrastructure services for information technology (IT) as the foundation of a successful e-learning system. In the last years the higher education as Perbanas Institute is learning that using e-learning, combined with learn as usual. Some of the existing research resulted that this method gives success rate at study some subjects, which has seen from the results of learning, interest and satisfaction of learners. The focus of this paper is the role of IT infrastructure services in terms of the success of e-learning system at higher educational especially in capital city. The empirical study confirms that IT infrastructure services supported the validity of the numbers and reliabilities in measuring the success of e-learning system. In the other hand, this study provides evidence of the important role of services of IT infrastructure in the success of e-learning system through significant effect on the perceived benefits. Evaluation of the success of e-learning systems is an important issue facing universities that use these applications, and to consider the importance of process evaluation to evaluate these types of systems.

Keywords: IT Infrastructure Services; e-learning system, evaluation

INTRODUCTION

There have been changes large enough in the field of Information Technology (IT), especially in the field of education. Online learning is now happening everywhere at all levels of education, in all educational institutions, and in the workplace. E-learning system has been developed to support teaching and learning in university or college in the world. E-learning system considered an important application in educational institutions today. Perbanas Institute Jakarta implemented e-learning blended with face-to-face or lecturer as usual. The Learning Management System (LMS) is a learning management system that has been adopted by 95 percent of all higher education institutions in the UK (McGill & Klobas, 2009). E-learning is also used for non-educational institution that is for employee training. The training activities are based on the e-learning system. Electronic applications such as e-commerce, e-learning, e-health, and e-banking have become commonplace in the last decade. This application continues to face the challenges of the high failure rate. All education efforts are a system, made up of various components that are interconnected. In traditional universities and colleges, teachers can be aware of all the complexities involved, but in distance education, to understand how the whole system development course and delivery occur, and how these systems connect to the service and other components is an important aspect to ensure the effectiveness and quality. In the learning process with the online system is one that was developed from scratch, save costs and reduces the role of staff without reducing the quality of

learning. In a learning system as well as any circumstances that are definitely not appropriate from the expected ideal shape. This happens on limited resources, the old system is entrenched, the need for well-trained teaching staff, also on the policy unworkable. Finally, the process is inadequate; the administrative system is not running with the new system. Additionally there are things to consider such as curriculum, learning technology and more. In this paper the key aspects of e-learning infrastructure will be explained and then adapted to the situation.

LITERATURE STUDY - METHODOLOGY

Each learning system that is built in to every business sense to learn online, then any part of the institution will have a specific purpose, and values that should be considered when planning and designing the ideal system. Building infrastructure for online learning must consider many factors. All teaching and learning system must be built on two basic i.e. needs of the learners (students) and learning outcomes (i.e., competence, knowledge or skills achieved), or in other words, should facilitate the needs of learners in learning to improve learning outcomes. Learning by online learning system must be based on a plan that flows from a full understanding of these two needs. The technological knowledge of learners is important too, including expectations of financial and other resources, access to the web or other online networks, bandwidth limitations, and other pertinent information about the readiness and ability for learners to participate fully in the learning process. For example, if in the learning of the course, students need to have access to high-speed connectivity that facilitates it in using the e-learning system imposed on campus. In this case the campus will probably prefer to use systems that require high bandwidth, and provides alternate access to online learning components (for example, with CD-ROM) to serve learners who have not been served by a system that has a high speed. Identify the needs of e-learning systems such as system design learning assessment, and curriculum-related learning process system can be designed mixture (blended) should be obtained with a clear analysis of critical thinking. Perbanas Institute Jakarta which has two faculties saw this opportunity and organized a blended learning system to continue to use the system to learn face to face but is supported by e-learning system. It is according to the needs of learners (students) and the expected learning outcomes.

Structure of E-Learning in general

The education by e-learning based needs a good understanding of the institution and student characteristics and needs of the curriculum used especially in higher education. It can be seen through the learning outcomes of the learning program to be used and developed. On this basis, the framework of online learning (e-learning) as a whole can be developed. This framework will demonstrate the organization of the various components of the proposed system, and will facilitate the development of a fairly complete.

This picture describes a framework for higher education institutions such Perbanas institute Jakarta. In the learning process it must be determined how the learning outcomes (Learning Outcomes) expected later translated into the content and the learning process that involves resources for learners/students to achieve the desired results. After the basic parameters done and then the development team will be responsible for translating the theory of learning modules and online functions to be delivered by a learning management system (LMS). Support digital libraries and

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other digital resources are also other services (registration, helpdesk, test forms), and Student Information System (SIS) through a secure server that can authenticate the login learners. From the perspective of learners, they will be connected to the LMS and related services through a portal that is user-friendly so that with just one login can have access to all the programs associated with that of the e learning and services inside. Finally, the evaluation process for the effectiveness of the system, based on the achievement of learning outcomes and feedback learners also feed back into the development cycle.

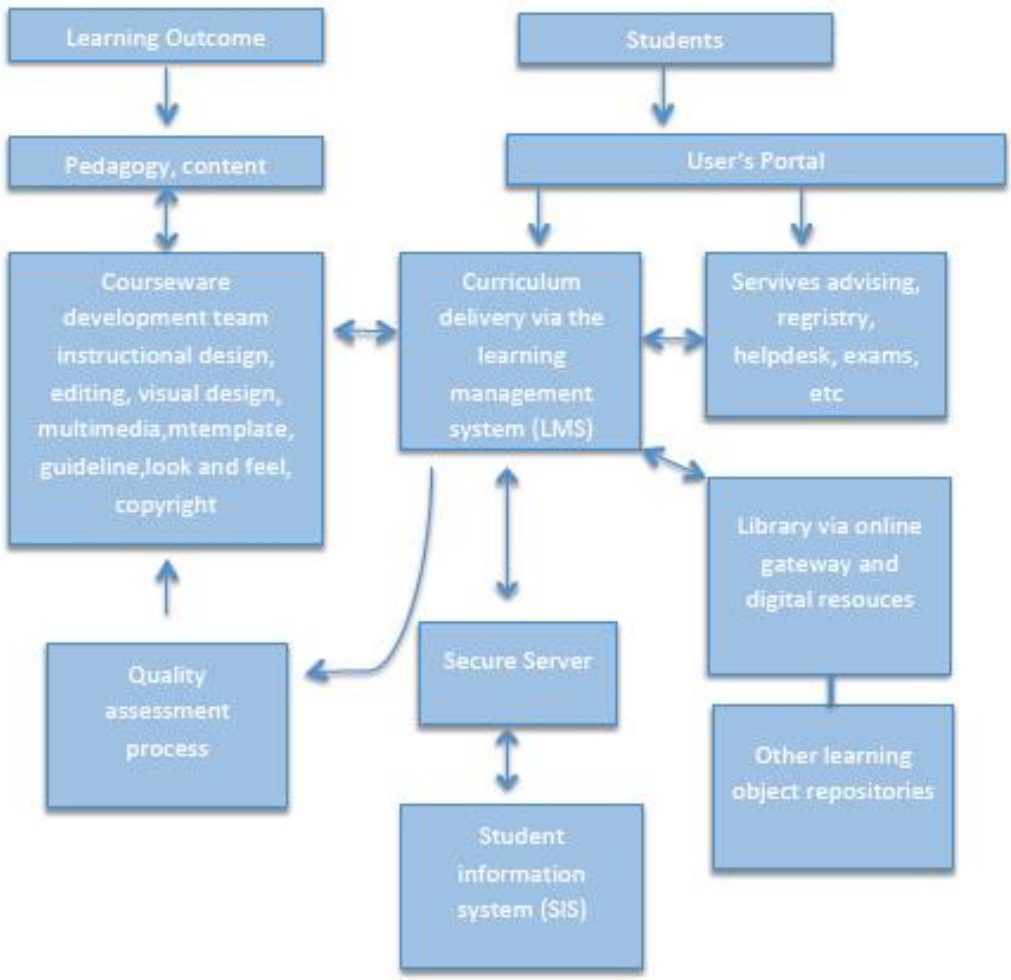

Figure 1: An Online Learning System Framework (adopted from Alan Davis)

Infrastructure aspects of online learning, especially for those who manage (the college management in the field of infrastructure technology) are responsible for information technology support. There are two things that are related and, on the relationship between the academic field (field of study) and administrative. Relation to whether the information technology functions on two things connect and interact with one another. This relationship is an important aspect of this issue. On the staff of online learning and e learning system needs a lot of support and maintenance of the computing unit is in the centre of campus. In general, administrative computing units

prefer a more centralized system. In practice e-learning priorities and different approaches emerge, and a clear statement of roles and responsibilities, processes, and policies should be established to help balance the need for control.

Components of E-Learning System

The main components in an e-learning system are infrastructure e- learning, system and application of e-learning, content e- learning. Infrastructure e-learning can be a personal computer (PC), a local computer network (intranet), internet, and multimedia media or teleconference. The system of e-learning software which is useful to make the learning process more conventional virtual. How classroom management, creation of learning materials, discussion forums, online examination system scoring system and all the features associated with the management of the learning process. System software in e-learning that's known as a Learning Management System (LMS).Content and teaching materials for e-learning systems. Content in e-learning can shaped interactive multimedia (Multimedia-based Content), may also form texts such as textbooks and other teaching materials. The material is stored in a Learning Management System so that students can access anytime if e-learning is based on Internet technology. The components of e-learning, the success of an e-learning system there must be a teacher as an instructor, students who receive and use and to receive teaching materials teachers and administrators who manage sustainability and administration of e-learning.

Learning Management System

An important decision that must be made during the development stage is the selection of LMS. Learning Management System is a term that refers to the concept of Learning System (LMS) is a software-based application system technology information and communication. The device is useful for planning system, implement, and assess student learning processes and products. Moreover, this system useful for improving system quality improvement learning sustainable. LMS selection if it is based on need alone, without consideration cost, availability of qualified staff, or the requirement to use the system existing or adapt the selection of open-source LMS. The need to adapt with a new LMS can have a negative impact on the learning experience of students.

Digital Library

LMS program connects to the resources they need online is important also from any online system. The need for access to get inland look into digital databases of journals, magazines and government publications. In addition learning resources will be increasingly accessible through the home and digital repository externally. In developing the infrastructure for online learning is that the availability of these resources online to be guaranteed, orate least anticipated, so the learning programs developed accordingly.

Service on Students

In online learning services to students must be considered. How to serve the needs of learners with its characteristics and transform. This pattern of learning during learning with face to face becomes independent online (e-learning). This will complete the online learning with the ability to adapt to learners (students).

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Student Information Systems Interface

Student Information Systems Interface and LMS should be integrated so it seemed Interesting as an online learning system. In many situations, there are more than one LMS, each of which must be connected to the Issuer Portal. Portal should enable learners, with a secure login, to access everything of interest to students. LMS, the value of learning outcomes and documentation related to e-learning. Portal also allows adjusting. Web portal page to be a unique interface, connecting with easy to other learners and staff, related services.

E-learning infrastructure

Infrastructure to build e-learning include, server, client server, UTP, concentrators, modems, LAN settings, Internet sharing and trouble shouting network.

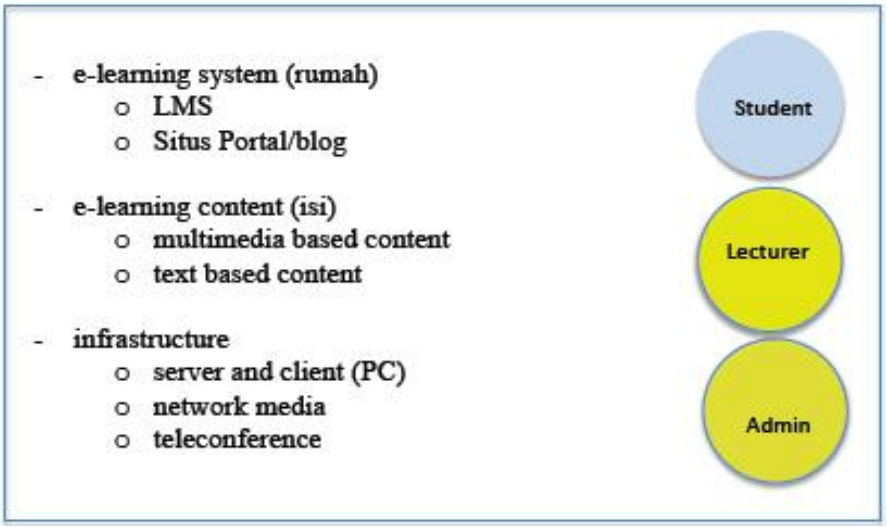

Figure 2: Components of E learning (adoption URL: http//:ilmukomputer.com)

CONCLUSION

In developing the infrastructure that supports excellence in e-learning, the main one is a clear understanding of the objectives of the curriculum and the characteristics and needs of the learners. Not forgetting a conducive learning environment with committed staff, so that the implementation of learning to work well. In the end, like the higher education system, e-learning is primarily a business man, with the technology available to support the principles and objectives of learning.

REFERENCES

Davis, A. (2008). *Developing an Infrastructure for Online Learning*. Athabasca University.

Effendi E, H. Zhuang. (2005). *E-Learning Konsep dan Aplikasi*. Yogyakarta: Andi.

Griffin A, Willet Amy Bates. (2010). *E-Learning Infrastructure: Success from Beginning to End*. San Francisco.

McGill, T. J., and Klobas, J. E. (2009). *A task–technology fit view of learning management system impact*. Computers & Education.

Narayana, G. (2009). *Library and Information Management.* New Delhi India.

Rusmana A. *Infrastruktur Teknologi Informasi pada Lembaga Pendidikan Kepustakawanan.* IAIN Sunan Kalijaga Yogyakarta.

Sanjaya, R., & Leong, M. (2008). *Mudah Membangun Web E –Learning.* Atmadjaya Yogyakarta.

Sanjaya, R. (2005). *Administrasi Jaringan Komputer Lintas Platform.* Jakarta: Elex Media Komputindo.

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E-LEARNING IN SUPPORT OF LEARNING EFFECTIVENESS IN CAMPUS

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Abstract

The rapid development of information and communication technology has urged various educational institutions including campuses to utilize an e-learning system to enhance the learning effectiveness and flexibility for students. The e-learning study in support of the learning effectiveness in campus is conducted by using the Moodle software. This research and development study is aimed at producing products/applications that can be used to achieve effective learning and motivate students in learning. Thus, students are able to discuss with their lecturers or fellow students at any time relating to problems to be dealt with for the right solution. The lecturers may also upload their course materials through multimedia and internet link to obtain information relating to the relevant course materials to further encourage students to actively participate and follow the given subjects.

Keywords: information technology, e-learning, effectiveness, moodle

INTRODUCTION

The rapid development of information and communication technology has urged various educational institutions to utilize an e-learning system to enhance the learning effectiveness and flexibility for students. Until recently, however, many educational institutions or campuses have still been using a traditional learning system or face-to-face approach in the classroom. The traditional learning system has made the students who could not attend the lectures in the classroom due to some reasons could not have anything to learn nor completed the tasks given by the lecturers at that time. Among the drawbacks of the traditional learning system is the unattractive presentation of course materials to students that are less motivating. Furthermore, if the students may have difficulty in understanding specific learning materials outside of campus they may also have difficulty in having a discussion with their lecturers or other students.

To deal with these problems, an e-learning technology method can be used as a means to achieve the effectiveness in student learning. Thus, learning materials can be accessed at anytime and anywhere, and can be presented more attractively, such as, by using multimedia tools (via texts, graphics, sound, videos and animations) and internet links to be connected to many relevant sources.

With the multimedia technology-based e-learning system, students are expected to gain an increase in their learning experience as this technology is able to facilitate teaching and learning interactions between students and their lecturers anywhere and at anytime.

LITERATURE REVIEW

Internet

Literally, an internet (abbreviation of the interconnected networking) is the global system of an entire computer networks connected together using the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. The Internet is the vast global computer networks interconnecting with one another among countries around the globe and provides various kinds of information, ranging from texts, images, audio, videos, and many more. The information is made by providers or owners of computer networks or by information owners entrusting their information to the internet service providers. The word internet is defined below from several sources:

Internet is the huge network that connects computer networks in the fields of businesses, organizations, government agencies, and schools around the world, in fast, direct, and economical ways (Turban, et al., 2006). Mac Bride as translated by Sugeng defines it as an open global communications network and connects thousands of computer networks, via public or private telephone lines (public or private) (Mac Bride, 1997). The internet is defined as the collection of computer networks that work together globally in distributing information exchange via TCP/IP (John December, 1997).

E-learning

E-learning is the learning method that is currently developed by utilizing the computer as a medium of learning, in addition to giving an innovation that has contributed greatly to change the teaching and learning process. The learning process is no longer presented by only listening to the descriptions of materials given by the lecturers but it is visualized in various formats and forms in a more dynamic and interactive way (files, videos, music, animations, etc.) (Ruli, 2009). The e-learning system and application have been widely applied in a number of universities and companies in Indonesia. The e-learning concept has now been growing as it has advantages compared to conventional systems, namely: saving learning time, reducing travel cost, saving educational cost (infrastructure, equipment, books), reaching a wider geographical area, and training students to become more independent in gaining knowledge (Romi, 2007).

The development of e-learning is a must for all the universities to improve the quality standards of their education. The e-learning system requires the use of the internet technology so that the learning materials can be presented more widely. The existence of the computer-based media learning as a tool can save hours of preparation time, motivate the students' learning experience and minimize the students' confusion in understanding the explanations of their lecturers (Ali M, 2009).

Moodle

In line with the technological advances and changing trends and dynamic lifestyles of the people that tend to move fast (mobile), the need for distance learning or commonly referred to as the tele-education is also increasing. The e-learning system as a part of the tele-education provides an alternative way of a new learning. Although lecturers and students are not in the same room and time, the teaching and learning process may still be conducted in a virtual environment. MOODLE is the software package produced for the internet-based learning activities and for websites

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commonly known as a Learning Management System (LMS)/Course Management System (CMS)/Virtual Learning Environment (VLE) or Curriculum and Information Management System (CIMS).

METHOD

The research and development is the study method used to produce a particular product and test the effectiveness of the product. The R&D may initially be conducted due to any potential or problem that occurs. The potential is anything that when used, it will have an added value, while the problem is the deviation between the expected and occurring events. The next stage following the analysis of the potential and problem stages is the development stage and further, production of a product (Sugiyono, 2010: 407-409). The next stage is the development of the e-learning products, and in this study, the development method adapts Alessi & Trolip model The study of the research development is adapting Alessi & Trolip development model (2001: 409-413) that has three attributes and three phases, as illustrated in Figure 2 below.

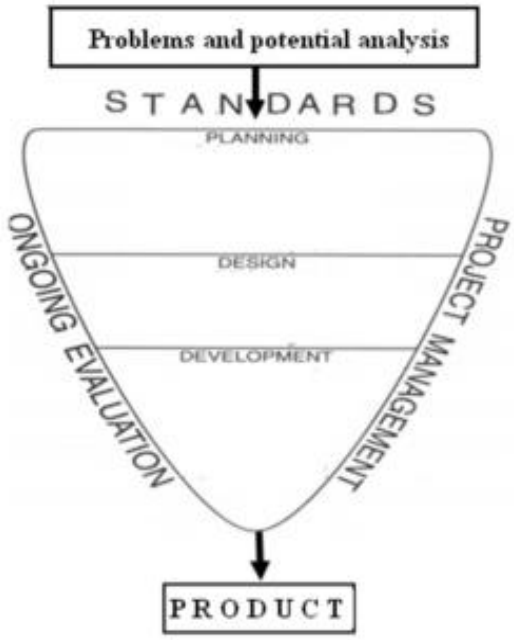

Figure 1: R & D Study Model
Adapted from Alessi & Trolip Model

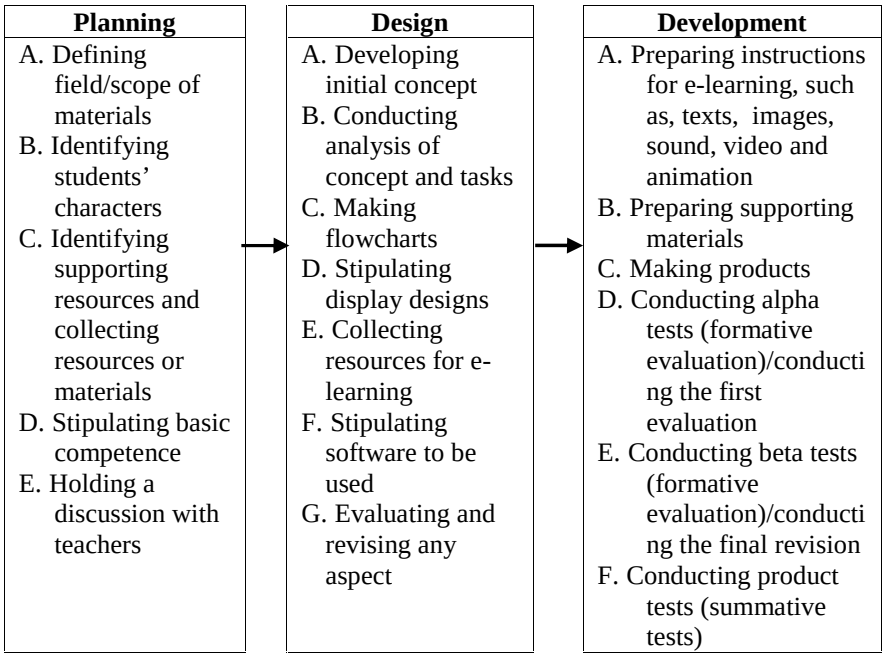

Figure 2: E-learning development process

RESULTS AND DISCUSSION

The results of this study will be used for lecturers, students and administration of lecturers. Whereas, the features that can be obtained by each user are as follows.

- ***Features for Lecturers***

No.	Features	Remarks	Period
1	Logging-in to e-learning	To be filled-in when logging-in to e-learning	Each time logging-in to e-learning
2	Having access to courses to be taught	Lecturers have access to courses to be taught	Course is input each semester
3	Having access to student lists	To have access to the student list in their class each semester	Student list is input each semester
4	Modifying courses' descriptions	Filling-in or modifying courses' descriptions	Upon any courses' modifications
5	Uploading courses' materials	Uploading courses' materials to be taught each semester	When uploading courses' materials

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6	Assigning tasks to students 6.1 Assignment 6.1.1 Availability 6.1.2 Sub mission Types 6.2 Quiz 6.2.1 Timing 6.2.2 Grade 6.2.3 Layout 6.2.4 Question Behavior	Giving tasks and quizzes to students	When giving tasks and quizzes
7	Making questions for quizzes 7.1 Essay 7.2 Multiple choice	Quizzes of their courses in the forms of essays or multiple choices	When making questions for quizzes

- ***Features for Students***

No	Features	Remarks	Period
1	Logging-in to e-learning	To be filled-in when logging-in to e-learning	Each time logging-in to e-learning
2	Having access to courses to be taught	Students have access to courses to be taken and lecturers who teach the courses	At the beginning of each semester
3	Having access to course materials, completing and uploading the tasks	Students have access to course materials given by the lecturers and completing and uploading the tasks to the system	At any learning session
5	Completing quizzes and having access to the results	Students may complete quizzes given by the lecturers and having access directly to the results from the system	At any quizzes given by the lecturers
6	Holding a discussion forum between the students and	Students may hold a chatting discussion with the lecturers and fellow	At any discussion held with the lecturers and fellow students

	lecturers	students	

- ***Features for Administration staffs in charge of the lecturers***

No	Features	Remarks	Period
1	Logging-in to Perbanas e-learning	To be filled-in when logging-in to Perbanas e-learning	When logging-in to Perbanas e-learning
2	Monitoring contents of course materials	Administration staffs in charge of the lecturers are monitoring contents of course materials given by the lecturers	On a weekly basis

CONCLUSION

Based on the e-learning research, it can be concluded as follows:

1. The existence of the e-learning system creates a more effective learning experience in campus, where students may access course materials at anytime and anywhere without having to wait for the lecturers;
2. Students may discuss with their lecturers or fellow students at any time concerning the problems to be dealt with for the right solution;
3. Lecturers may upload lecture materials in such forms as power point via the internet link relating to the relevant lecture materials or interesting videos that can motivate students to follow and participate in courses given.

REFERENCES

Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning: Methods and development (3th ed.)*. Massachusetts: Ally & Bacon A Pearson Education Company.

E.Turban, K. Rainer., & Potter, R. (2005). *Introduction to Information Technolog, 3rd Edition.* Sine Nomine

J. December. (1997). *Computer-Mediated Communication Magazine. CMC Magazine*.

M. Bride. (1997). *Internet.* Jakarta: PT. Keisaint Blanc.

Muhammad Ali. (2009). Pengembangan Media Pembelajaran Interaktif Mata Kuliah Medan Elektromagnetik, *Jurnal edukasi @ elektro: Vol.5, No. 1*. Univ Negeri Yogyakarta.

Romi Satria Wahono. (2007). Sistem e-learning Berbasis Model Motivasi Komunitas. *Jurnal Teknodik: No. 21/XI/TEKNODIK/AGUSTUS/2007, Agustus 2007*.

Rosenberg. M. J. (2001). *E-learning strategies for delivering knowledge in the digital age*. New York: McGraw-Hill.

Ruli Silo. (2009). Pembuatan Media Pembelajaran Berbasis Browser Training dengan Menggunakan Software Content Management System Joomla pada Mata Diklat Pemeliharaan/Sevice transmisi Manual dan Komponen. *Jurnal PTM: Vol. 9, No. 2, Desember 2009*.

Sugiyono. (2010). *Metode penelitian kuantitatif, kualitatif dan R and D*. Bandung: Alfabeta

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HUMAN RESOURCE MANAGEMENT THROUGH TRAINING AND COMPETENCE ENHANCEMENT LECTURER ON E-LEARNING IMPLEMENTATION AT UNIVERSITY

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Abstract

All human resources wherever required to constantly upgrading the (increased) in order to meet the evolving needs in accordance with the changing times. For that reason, every human resource management anywhere, requires good management of human resources so that all can be directed well too, so that human resources can be empowered optimally. Human resource development in human resource management is a process, action and management strategy that encourages each individual to experience the process of growth and development capability stronger and more independent. Human resources management in a company/institution responsible for facilitating the empowerment of human resources through the creation of a conducive environment, in order to help each individual to be able to scale up to the maximum of professionalism and competence. Human resources management will be set and position each of manpower according to their expertise, as well as the existing set of human resource development. In the world of e-learning, Human resources is a very vital factor in the implementation of e-learning for e-learning appears precisely to improve the quality of human resources, both in companies, agencies, institutions/education, as well as in social life. Therefore human resources need to be prepared as well as possible before the e-learning run.

Keywords: Human Resources, Training and Competence Enhancement Lecturer, E-learning

LITERATURE REVIEW

Training is a process to teach new employees or existing employees, basic skills that they needs to perform their jobs. Training is one of the efforts in improving the quality of human resources in the workplace. Employees, whether new or already employed need training for their job demands may change due to changes in the work environment, strategies and so forth (Dessler, 2009).

Law No. 14 of 2005 mentioned lecturers are professional educators and scientists with the main task transform, develop, and deploy science and technology, and the arts through education, research, and community service. Lecturer is an important component in higher education, any policy designed to improve the quality of education, which in turn lecturers carry out the teaching and learning process. As the spearhead of college, lecturer determines the quality of education and it graduates, in addition the quality of a university in general. If all lectures of a college or university are qualified then quality of a college or university must be graded and vice versa.

Policy formulation of Competence Enhancement Lecturer program is one of the essential components of a system of higher education. Roles, duties and responsibilities of faculty is very important in realizing the National Education, namely the intellectual life of the nation, improve the quality of human beings, including the quality of faith and piety. The professional development of lecturers

includes four competencies, namely: 1) Pedagogical competence or faculty ability to manage learning processes; 2) Personality competence or standards authority, maturity and exemplary; 3) Professional competence or the ability of faculty to master the content and methodology of learning; 4) Social competence or the ability of faculty to perform social communication, both with students and the wider community.

E-learning is composed of two parts, namely 'e' stands for 'electronic' and 'learning' which means 'learning'. So e-learning means learning by using electronic devices assistance services. E-learning is defined as a learning system that is used as a tool for teaching and learning process implemented without having to meet directly between educators and learners (Ardiansyah, 2013). E-learning as distance learning process by combining principles in the process of learning with technology (Chandrawati, 2010).

DISCUSSION

Along with the development of Information and Communication Technology (ICT) is growing rapidly, the needs for a concept and mechanism of learning (education) -based IT becomes inevitable. The concept was then known as e-learning bring the influence of conventional education transformation process into digital form, both contents and the system. Currently e-learning concept has been widely accepted by the world community, as evidenced by the widespread implementation of e-learning, especially in educational institutions (schools, training and higher education). Some colleges conducting electronic learning as a supplement of the subject matter presented regularly in the classroom. However, several other universities conducting e-learning as an alternative for students who for one reason or another are unable to take the classes directly. In this regard, e-learning is as an option for those students.

The tendency to develop e-learning as an alternative learning in universities is increasing in line with developments in the field of communications and information technology. Infrastructure in telecommunications that support the implementation of e-learning is no longer just a monopoly of the big cities, but gradually has begun to be enjoyed by those who were in the cities at the district level. Utilization of telecommunications technology to the learning activities in universities in Indonesia is more conducive to the issuance of the Decree of the Minister of the Ministry of National Education in 2001 which encourages universities to conduct conventional distance education (dual mode). In addition, the Regulation of the Minister of Education and Culture Number 24 of 2012 on the Implementation of the Distance Education in Higher Education, the Law of the Republic of Indonesia Number 20 of 2003 on National Education System, Government Regulation Number 17 of 2010 on the Management and Delivery of Education as amended by Government Regulation Number 66 of 2010, and the Law Number 12 of 2012 on Higher Education, making distance education system become embedded in the world of education in Indonesia and a choice for the public to gain access to education. This has opened opportunities and opportunities for a wide range of higher education institutions to actively participate in distance education.

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Characteristics and Benefits of E-learning

E-learning has several characteristics, namely: 1) Utilize the service of electronic technology. So as to obtain information and communicate with easily and quickly, both between lecturers and students, or students to a student; 2) Utilizing computer media, such as computer networks or digital media; 3) Using the learning material to be studied independently (self-learning materials); 4) Learning materials can be stored on a computer so it can be accessed by faculty and students anytime and anywhere if the person concerned need; 5) Engage the computer to the learning process and also to know the progress of learning, or educational administration and to obtain a lot of information from various resources.

E-learning enables easy interaction between students and the subject matter. Students can share information or opinions about various matters relating to the lesson or needs personal development of students. In addition, teachers can put learning materials and tasks that must be done by the students in the web for access by students. As required, the lecturer can also give students the opportunity to access a specific learning materials and exam questions that can only be accessed by students once and within a specific time span.

In more detail, the benefits of e-learning can be seen from the two (2) angles, namely from the point of students and faculty:

From the point of Students. With e-learning activities made possible the development of high learning flexibility can cope with students who are: a) Studying at a college in disadvantaged areas to follow certain subjects that cannot be provided by the college; b) Hospitalized or residing in different regions or even residing abroad (Siahaan, 2004).

From the Point of Lecturers. Some benefits for the lecturers that they are able to: a) Easier updating the material which they are responsible in accordance with the demands of scientific developments that occurred; b) Develop themselves or do research in order to improve their knowledge for free time possessed relatively more, c) Controlling student learning activities. Even lecturers are also able to see when students learn, what topics are studied, how long a topic studied, as well as how many times a particular topic studied again, d) Check whether the students have been working on exercise after studying a particular topic, and e) Checking student answers and notify the results to the students (Siahaan, 2004).

In addition, the benefits of e-learning with the use of the internet, particularly in distance learning includes: a) Lecturers and students can communicate easily and quickly through the internet facility without being limited by space, time and distance. Regularly or whenever the communication can be done; b) Lecturers and students can use learning materials that the scope and sequence has been systematically scheduled over the internet; c) With e-learning can explain learning materials are difficult and complicated to be an easy and simple. In addition, learning materials can be stored in the computer, so students can relearn or repeat the learning materials they have learned at anytime and anywhere in accordance with its requirements; d) Simplify and accelerate access or obtain a lot of information related to the learning material had learned from various sources of information to make access on the internet; e) Internet can be used as a medium for discussion between lecturers and students, good for a student, or in student number of limited, even mass; f) More active role of the student studying teaching materials, gain knowledge or

information independently, do not rely on the provision of lecturers, adapted well to the wishes and interests of the learning materials; g) Relatively more efficient in terms of time, place and cost; h) For students who are already working and busy with activities that do not have the time to come to an educational institution, it can access the internet at any time in accordance with their spare time; i) In terms of costs, the provision of internet services cost more effective than having to build classrooms in educational institutions, in addition to the cost of building maintenance, they should also set up costs for paying employees; j) Provide interesting and meaningful experience for the students because it can interact directly, so an understanding of the material will be more meaningful, easy to understand, easy to remember and also to be disclosed; k) Working together in an online community that facilitates the transfer of information and perform a communication so it will not lack the resources or learning materials; l) Centralized administration and education, so it is easy to access or in operation; m) Make the center of attention in learning.

Application of E-learning Strategy

The use of e-learning strategy to support the implementation of the learning process, is expected to enhance the absorptive capacity of the students on the material being taught; promote the active participation of students; improve self-learning ability; improve the quality of education and training materials, improving the ability to display information with information technology devices, with a typical device is difficult to do; expand the range of teaching-learning process by using computer networks, is not limited to space and time. To accomplish the foregoing, in the development of an e-learning applications to note that the materials displayed must support the delivery of the right information, not just priority to the beauty of the course; paying close attention to the teaching and learning techniques are used; attention to student progress evaluation techniques and data storage learners progress. Matter of education and training can be taken from valid sources and with e-learning technology; materials can even be produced based on the source of experts.

There are several educational strategies that can be implemented by using e-learning technologies (Koswara, 2006) are as follows:

Learning by doing. Simulation learn by doing what he wanted to learn; example is a flight simulator, where a prospective pilots can be trained to perform a specific aircraft flying as he practices real airplane.

Incidental learning. Learn something indirectly. Not all that interesting to learn, therefore, with this strategy a student can learn something through something else more interesting, and it is hoped that information can actually be absorbed indirectly.

Learning by reflection. Learn something by developing the idea/ideas on the subject to be studied. Students are encouraged to develop an idea/notion by providing the initial information and the application will "listen" and process inputs idea/ideas from students and then given further information based on feedback from students.

Case-based learning. Learn something based on cases that have occurred on the subjects to be studied. This strategy depends on expert resource persons and cases that can be gathered about the material to be studied. Students can learn the material by absorbing information from expert sources on cases that have occurred over the material.

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Learning by exploring. Learn by exploration of the subject to be studied. Students are encouraged to understand the material by conducting independent exploration of the material. Applications should provide sufficient information to accommodate the exploration of students. Learn something by setting a goal to be achieved (goal-directed learning). Students positioned in as someone who must achieve the goals/objectives and applications provide the necessary facilities for doing so. Students then develop strategies independently to achieve these objectives.

The ability that should be process by lecturers in implementation of E-learning

Successful concept of e-learning should be supported by information technology devices, in addition supported by planning, administration, management and economics adequate. Which should also receive particular attention is the role of the facilitators, faculty, staff, and means of implementation, through the adoption of new technologies, facilities, cost and schedule of activity (Natakusumah, 2002). Conceptually, professor of e-learning should have the capability of understanding the material being presented, to understand e-learning strategy that is effective, responsible on the subject matter, lesson preparation, creation of educational modules, the selection of supporting materials, delivery of the subject matter that is effective, the determination of the interaction of participants learners, selecting and evaluating assignments electronically. Lecturers should be able to use the equipment, among others, using audio, video material and computer networks for the learning takes place.

The new capabilities that needed by lecturers in the implementation of e-learning are: 1) Understand about e-learning; 2) Identifying students characteristics; 3) Designing and developing interactive courses in accordance with the development of new technologies; 4) Adapting teaching strategies to deliver the material electronically; 5) Organizing the material in a format that is easy to learn; 6) Conduct training and practice electronically; 7) Involved in the planning, development and decision making; 8) Evaluating the success of learning, attitude and perceptions of learners (Koswara, 2006).

Human Resources Management in Implementation of E-Learning

Human resources management in higher education responsible for facilitating human resource development through the creation of a conducive environment, in order to help each individual to be able to scale up to the maximum of professionalism and competence. Human resources management will be set and position each of manpower according to their expertise, as well as the existing set of human resource development. In the application of e-learning, human resources is a very vital factor in the implementation of e-learning for e-learning appears precisely to improve the quality of human resources, both in companies, agencies, educational institutions, as well as in social life. Therefore human resources need to be prepared as well as possible before the e-learning run.

Personnel Division or now more popularly known as the Human Resources Section is a section (department/division) responsible for many activities related to HR. The human resources department has four main activities, namely: 1) Recruitment and Admissions; 2) Education and training; 3) Data Management; 4) Termination and Benefits Administration. (See Figure 1: Flow Personnel Resources).

To run the e-learning, human resources management competencies and also the managers of e-learning needs to be prepared as well as possible. Competencies include content management competence, competence for the management of learning and competence for managing the implementation of e-learning itself.

Higher Education should be envisioned, such as send the faculty to: 1) Adhering to training on the development of electronic learning materials; 2) Identifying the various electronic learning platform available; and 3) Conducting experiments on the use of certain electronic learning platform for presenting lecture material. Education and training is given to lecturers in a planned and sustainable based Lecturer Development Plan which refers to the Strategic Plan and the Operational Plan universities whose implementation is monitored and evaluated by the Institute of Internal Quality Assurance of Higher Education.

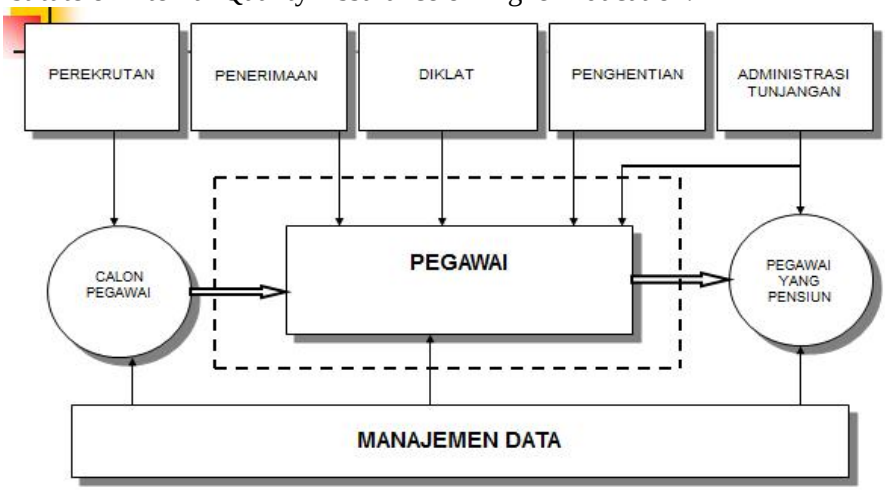

Figure 1: Flow Personnel Resources

CONCLUSION

Human resources at universities should have the mindset that e-learning is becoming an institution needs to achieve the vision and mission so that e-learning should be done. This viewpoint is certainly bringing consequences and requires changes, such as changes in the work culture of the institution. In this case the management of human resources as a manager of human resources will certainly make policies in accordance with the need to run an e-learning at the institution.

To run the e-learning, human resources management competencies and also the managers of e-learning needs to be prepared as well as possible. The Competencies includes; content management competence, learning management competence and competence in managing the implementation of e-learning itself. By mastering all the competencies above, it can be ascertained that e-learning will be done and conveyed properly.

REFERENCES

Ardiansyah, Ivan. (2013). *Eksplorasi Pola Komunikasi dalam Diskusi Menggunakan Moddle pada Perkuliahan Simulasi Pembelajaran Kimia*. Universitas Pendidikan Indonesia. Bandung-Indonesia.

ISBN 978-602-73030-1-0

Chandrawati, Sri Rahayu. (2010). *Pemanfaatan E-learning dalam Pembelajaran*. No 2 Vol. 8. http://jurnal.untan.ac.id/

Dessler, Gary. (2009). M*anajemen Sumber Daya Manusia*. Jakarta: PT Index.

Groedu Academy. *Mengelola SDM Dalam Menjalankan E-Learning*.

Koswara, E. (2005). Konsep Pendidikan Tinggi Berbasis E-learning: Peluang dan Tantangan. P*rosiding Konferensi Nasional Teknologi Informasi dan Komunikasi Indonesia ITB. 3-4 Mei 2005*.

McLeod & Schell. (2004). *Sistem Informasi Manajemen. Edisi Kedelapan*. Jakarta: PT Indeks.

Natakusumah, E. K. (2002). Multimedia sebagai sarana pembelajaran. Lokakarya Multimedia Sebagai Sarana Pembelajaran Metode Learning Based: DUE-Like TPB ITB. 13 Nopember 2002.

Nur Syam. *Standardisasi Dosen Perguruan Tinggi*. http://nursyam.sunan-ampel.ac.

Panduan Pelaksanaan PJJ. (2016). *Direktorat Jenderal Pembelajaran dan Kemahasiswaan. Kementerian Riset, Teknologi dan Pendidikan Tinggi.*

Siahaan, S. (2004). *E-learning (Pembelajaran Elektronik) Sebagai Salah Satu Alternatif Pembelajaran*. http://www.depdiknas.go.id/Jurnal/42/sudirman.htm (3 November 2006).

Undang Undang Republik Indonesia No. 14 Tahun 2005 tentang Guru dan Dosen

STRATEGIC MANAGEMENT IN DEVELOPING CERTIFICATION ONLINE

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Abstract

Organizational culture can encourage or decrease the effectiveness of the work of the organization, this is determined by the nature of the values, beliefs, and norms. The intense competition between businesses in the field of social and educational tighter feel, especially with the advances in technology that allow competition of various shapes and new techniques such as social media with a network connection system is adequate. The impact of each individual or group of organizations has an equal opportunity to participate in the competition. With the good management strategy, the company or organization can compete and still exist in the field of business carried on. Strategic management make new choices that involve success and trip organization. Quality improvement organizations use management strategies also apply to an organization that moves through cyberspace (online). To establish the existence in the online world is can of the technological developments that have left people to interact more with the online world. A competency certification system order includes linkage components of comprehensive competency certification and synergy in order to achieve the goal of job competence certification. In this global era program that is run through the online system is better able to reach consumers or respondents wider and infinite.

Keywords: organization, effectiveness, technology, strategic management

INTRODUCTION

Efforts to develop a process for preparing the organization of management changes in the organization. The changes are expected to be able to answer the challenges, issues, and goals of the organization. Changes in question were linked to the organization's culture. An organization's culture can encourage or decrease the effectiveness of the work of the organization; this is determined by the nature of values, beliefs, and norms.

Organizational challenges in its global era are the technological advances that have an impact on free competition more open. The intense competition between businesses in the field of social and educational tighter feel, especially with the advances in technology that allow competition of various shapes and new techniques such as social media with a network connection system is adequate. Thus competition is open free to anyone who has the interest and ability. Ultimately the technology impact on free competition without boundaries. Given the above conditions, any individual or group of organizations have an equal opportunity to participate in the competition.

For every social enterprise and educational organizations that want to compete in the competition should have the technical and management the right competitive strategy. Strategy refers to the peak of the management plan for developing and maintaining competitive advantage circumstances. Thus the company's successful strategy can not be easily duplicated by competitors so the mission of the organization is met. With the good management strategy, the company

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or organization can compete and still exist in the field of business carried on. The management strategy emphasizes an organization to be more proactive than reactive in determining its future. For it is necessary for the organization to take the initiative and do an activity that can control the state of the company. The key to success in management strategy is communication via a communication channel, and then the managers and workers have a commitment to support the organization. Strategic management make new choices that involve success and trip organization. Because of the problems encountered very unique, then the manager must have the right strategy based on the basis of assessment and experience to be able to devise a strategy to manage a number of organizational resources into an activity that projects deliver organizational success.

The major challenge faced is to integrate the opportunities that exist in the environment with the capabilities organizations towards the achievement of organizational goals. Quality improvement organizations use management strategies also apply to an organization that moves through cyberspace (online). Some organizations more often to show the existence of the organization through cyberspace, either by building an official website or through social media sites are free. Every way that can be done to build and develop the organization towards a more advanced conducted as part of its work to realize that debuted organization. To establish the existence in the online world is can of the technological developments that have left people to interact more with the online world. Silence at home does not mean that can not be walking around shopping, looking for information and others. This reality into special consideration for employers to create a network to reach the Community or consumers who are in the virtual world. The certification body is an institution in the field of quality assurance, skills and skills of a person. The certification body is currently a bridge to the world of education with industrial world. Organizing the certification body with the online method allows each resident gets the right to be certified.

A competency certification system order includes linkage components of comprehensive competency certification and synergy in order to achieve the goal of job competence certification. One of the certification bodies provide a certificate to a particular membership has provided an opportunity to the consumers or customers to perform tests or trials to get scores and certify through the online world. Certain techniques and instruments are valid tests of critical concern for these institutions. One such example of an organization called Certiport. Certiport is an organization engaged in the field of computer skills such as using office, adobe and others. System certification test done online, with the advantage that every human being has a network connection will be able to perform a test developed by the agency. Thus Certiport institutions can reach consumers throughout the world. activities undertaken by the agencies above suggests that, in this global era program that is run through the online system is better able to reach consumers or respondents wider and infinite.

DISCUSSION AND CONLUSION

Management Strategies

A. Understanding Strategic Management

According to David Strategic management is the science concerning the formulation, implementation and evaluation of decisions of great cross-functionality

that enables the organization to achieve its objectives. According to Lawrence Strategic Management is a number of decisions and actions that lead to the formulation of a strategy or a number of effective strategies to help achieve the company's goals. Strategic management is a whole series of decisions and actions that determine the company's performance in the long term. It includes identifying and analyzing the environment, formulating strategy, implement the following strategies and evaluate control.

Management strategies can be defined as a combination of art and science in terms of all entries, implementing and evaluating cross-functional decisions that enable an organization to achieve its goals in the future. Indirectly definition of management strategy is to combine or merge the management of marketing, finance, production, research and development and computer information systems to achieve the success of an organization. Management strategies embodied in the form of large-scale planning includes all components of the environment of an organization that is manifested in a strategic plan that translated into operational planning, which is then translated also in the form of annual work programs and projects. Strategic plan future-oriented range. Vision, mission, strategy selection strategy which resulted in the parent, and the purpose the organization's strategy for the long term is a reference in formulating a strategic plan, but in the technique of placing a top management decision in writing all the references contained therein. Strategic Plan is translated into an operational plan which contains, among other operational programs, including projects, with medium-term targets as well as the respective top management decisions. Determination of strategic planning and operations plan should involve top management due to its very basic/principal in the implementation of the entire mission of the organization, to create, maintain and develop the existing medium-term, including length. Implementation of the strategy in programs, including projects to achieve the goal of each is done through other management functions, organization, implementation, budgeting and control.

B. Strategy Management Functions

- Develop a strategic vision and business mission.
- Set goals.
- Formulating strategies to achieve the goal.
- Identify and implement strategies.
- Evaluating strategies

1. Vision strategy

   Vision strategy is an objective of the future direction and business actions of an organization. The concept that guides the company to do something and become something. The mission defines the company's vision and gives a clear overview of what you want to do for customers. In making the mission, we should consider all the capabilities and weaknesses, so that the contents of the mission not are a chimera or promises. By developing and communicating business mission and strategic vision, management can instill in workers about the meaning and purpose of convincing the company's direction in the future.

2. Setting Goals Strategy

   Goals are the responsibility of management to achieve results or achievements in a given time. Interest strategies can be set for all of the following areas: marketing, profitability, physical resources and finance,

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productivity/efficiency, employee performance, management development, innovation, including the production, process and administrative, social responsibility, the responsibility of the owner, broad/growth/diversification,

3. Strategy formulation
   Strategy formulation containing business development mission, identify threatening external to the organization, determining the internal strengths and weaknesses, determine the long-term goals, generate alternative strategies and specialized recovery strategies. Issue of strategy formulation containing a new business decision what to enter, what business fails, how to allocate resources, how to expand company or diversification, how to enter the international market, how a merger to form a joint-venture and how to avoid contradictory.
4. Implementation Strategy
   Implementation of the strategy requires a company to generate annual objectives, creating policy, worker motivation and allocate resources so that the strategies have been formulated already be implemented. Implementation of the strategy contains elements of a cultural development strategy sportive, creating effective organizational structure, looking for new opportunities in the marketing, preparing a budget, develop and use information systems and linking workers' compensation with the commissioning organization. Implementation of the strategy is often called the action level of management strategy. Implementation of the strategy is intended to mobilize workers and managers to implement strategies that have been formulated into action. Often referred to as the hardest level in management strategies, for the implementation of the strategy requires discipline, commitment and sacrifice.
5. Evaluation strategy
   Evaluation of the strategy is the last level in management strategy. Three basic evaluation of the strategy are:
   a. Re-examine the external and internal factors that are the basis of the strategy runs.
   b. Performance measurement.
   c. Take corrective measures.

C. Stages and Process Management Strategy

The term strategic management is broader than a strategy and a process that includes analysis of the final management of the environment in which it operates before formulating a strategy and implementation plan and control strategies. The difference between the strategy and the strategic management process is a strategic management activity to consider what should be done before a strategy is formulated through observation and to assess whether the strategies are successful or not. Strategic management process can be summarized in five steps:

1. External Analysis: Analyze opportunities and threats, or constraints that are in the organization's external environment, including industry and strength in the external environment;
2. Internal Analysis: Analyze strengths and weaknesses of the organization in the internal environment. Consider the context of managerial ethics and corporate social responsibility;

3. Strategy formulation: formulate strategies that build and sustain competitive advantages by matching the strengths and weaknesses of the organization with environmental opportunities and threats;
4. Strategy Implementation: Implementing strategies that have been developed;
5. Strategic Control: upper level management to formulate the design and action monitoring and evaluation of all strategies applied. Evaluation techniques formulated to monitor the progress of the organization and the organization's goals. While the appearance standards used to measure the success of an organization

Management strategies embodied in the form of large-scale planning includes all components of the environment of an organization that is poured in the form of a strategic plan (Plan) which are translated into operational planning, which is then translated also in the form of annual work programs and projects. Strategic plan future-oriented range. Vision, mission, strategy selection strategy which resulted in the parent, and the purpose the organization's strategy for the long term is a reference in formulating a strategic plan, but in the technique of placing a top management decision in writing all the references contained therein. Strategic Plan is translated into an operational plan which contains, among other operational programs, including projects, with medium-term targets as well as the respective top management decisions. Determination of strategic planning and operations plan should involve top management due to its very basic/principal in the implementation of the entire mission of the organization, to create, maintain and develop the existing medium-term, including length. Implementation of the strategy in programs, including projects to achieve the goal of each is done through other management functions, organization, implementation, budgeting and control.

In the organization, the strategy was being formulated, implemented and controlled simultaneously while the external and internal factors continue to reset. In addition, a change in one step from the strategic management process will inevitably affect the other stages as well. After a planned strategy to implement, often requiring modifications as conditions change. Therefore, because of this step is so closely intertwined, insiders tend to treat every step as, the ongoing process of a single integrated.

Strategic Management Institute Certification Online

A. Foundation

1. Global competition with a broad line
   Certification agencies in the global era have increased by providing technical expertise through an online test. This strategy is geared to compete worldwide with complete industry product lines by leveraging global resources to achieve competitive advantage differentiation or low cost position overall. Implementation of this strategy requires the availability of huge resources and long-time coverage.
2. Global focus
   This strategy targeting a particular segment of the industry where companies compete worldwide. Segment selected when barriers to world competition is low and the company's position in that segment can be protected from the invasion of global competitors. The results of this strategy are the low cost will be differentiated in its segment. Certification bodies which provide

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international certification such as certification capabilities globally using office awarded through an open examination at the site office.

3. National focus
   This strategy utilizes differences in national markets to create approaches focus on a particular national market which enables the company to outperform global company. Variations of this focused strategy aimed at achieving differentiation or low cost in serving the specific needs of a national market, or segments in which most influenced by economic barriers against world competition.
4. Sphere shielded
   This strategy looks for countries where the government blocking competitors world level by means of requiring the use of local components on a single product lot, wearing high tariffs and so on. Company to build this strategy in order to deal effectively with certain markets have restrictions like this and focus very big on host country governments to ensure that such protection remains in force.

B. External environment analysis

External environment is challenging and often complex, companies need to develop the skills needed to identify opportunities and threats that exist in their external environment. The external environment there are two parts, i.e. the general environment includes five segments: demographic, economic, political, legal, social, cultural and technological. Part two: industrial environment: factors threat of entry of participants/new players, the strength of the position of the supplier, the power position of buyers, the threat of substitute products and the intensity of competition. Managers must understand their company's position, relative to competitors, in terms of dimensions important strategy.

Industrial is a group of companies that produce similar products or a substitute for one another. In terms of competition, this company influence each other. Usually the industry consists of a wide range of competitive strategy used by the company in the pursuit of strategic competitiveness and higher profitability.

Compared with the general environment, industry environment has a more direct effect on the competitiveness of strategic and profitability. The intensity of competition in the industry and potential industry earnings is a function of the five forces of competition.

C. Analysis of Internal Environment

Because of the global economy, the traditional source of competitive advantage, including cost, labor, capital and raw material costs become relatively ineffective. The managers are evaluated in terms of their ability to identify, maintain and use their company's core competencies. Good environment internally and externally affect the company's business strategy to achieve competitiveness and profit above the average. But in the global economy, perhaps the core competencies, the general nature of the environment, industry and competition, should be regarded as the main basis for the formulation and implementation of strategy. Often, competitors learn how to replicate the benefits of a company's strategy. Thus, every company is challenged to use the competitive advantage currently owned while simultaneously using resources, capabilities and competencies to develop relevant benefits in the future. As a result of analysis of the company's internal and external

environment is the information needed to establish a strategic intent and strategic development of mission.

Strategic intent is the use of internal resources, capabilities and core competencies the company to do what was originally considered as a goal that can not be achieved in a competitive environment. Strategies mission is a statement the company's unique objectives and scope of its operations in terms of products and marketing.

D. Formulation of strategy

1. Business-Level Strategy
   Business level strategy (business level strategy) emphasizes the measures to be taken to provide value to customers and gain competitive advantage through the utilization of core competencies in the market for a particular product. Its core competencies are resources and capabilities that have been identified as a source of competitive advantage for the company against its competitors. Business level strategy, which is a coordinated action in the market for a particular product. Cost advantage, differentiation, low cost focused, focused differentiation and low cost/differentiation integrates the five strategies that must be done. Cost advantage requires companies providing products acceptable to consumers at the lowest possible prices that remain competitive. Differentiation strategy requires companies to provide consumers products that are considered as a unique one so important to them. Focused strategy requires companies to specialize is providing more service to streamline market segments through differentiation or cost advantage. With the low-cost strategy/integrated distinction, the company intends to provide differentiated products that consumers appreciated, at a low cost.
2. Strategies for Company Level
   Enterprise-level strategy (corporate level strategy) is an action taken to gain competitive advantage through the selection and processing a number of businesses/enterprises that compete in some industries or product market. Enterprise-level strategies related to two questions: what to choose a business enterprise and how companies have to process the entire business.
3. Acquisition and Restructuring Strategies
   Acquisition is a transaction in which all the company bought 100% ownership or control of another company in order to more effectively use its core competencies to make the company which was acquired as a company that supports its business portfolio. Acquisition is a popular strategy diving a few years, but lately the number and size of acquisitions increased rapidly. Company acquisition. Among them is to build market power, overcoming barriers to entry, avoiding the costs associated with new product development and marketing, accelerate new corporate ownership, reduces the risk of entering new business, diversify companies with greater ease and avoid the pressure of competition, often from foreign companies. Acquisitions also pose a problem for the acquiring company. Often difficult to achieve effective integration between the acquiring company and the acquired.
   Restructuring is a change in the composition of the company's business or financial structure. Restructuring into action common and important strategy. This restructuring is often done to streamline the company. This approach

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requires the termination of employment and also reduces the number of levels of the organizational hierarchy. Although it reduces formal behavioral control, the problem remains problematic because the corporation does not have the right to withhold the employee who wants to get out. Therefore, companies may lose many employees who excel. Another approach is down scoping restructuring, namely the release of the diminution or elimination of businesses that are not related to the main business of the company. Another popular form of another restructuring is Leverage Buy Out (LBO). In LBO management or external parties to buy 100% shares of the company, which is largely financed by debt and make the company private?

4. International Strategy
   International strategies related to sales of products to markets outside the company's domestic market. International strategy usually tries to take advantage of four important opportunities: the potential for an increase in the size of the market, the chances of return investment large economies of scale and knowledge and the potential benefits of the location.
5. Strategic Leadership
   Effective strategic leadership needed to formulate and implement strategies successfully. Strategic leadership includes the ability to anticipate, have a vision and maintain flexibility, authorize others to create strategic change. Top management team comprised of key managers who formulate and implement corporate strategy. General Manager of the corporation and is the official or member of the board of directors. The manager determines the strategic direction of change and thus affects the strategic competitiveness and its ability to benefit above average. Strategic leadership includes determining strategic direction, utilization and maintenance of core competence, the development of human capital, the maintenance of an effective corporate culture, emphasis on practice - ethical practice, and development of strategic control.

E. Strategy Implementation

In the implementation of the strategy requires commitment and sacrifice every part involved. Discipline and morale is absolutely necessary in order to implement the draft strategy to be executed together.

F. Strategic Control

Re-examine the factors that can influence policy both external and internal which is the basis of the strategy pursued. Measurement of performance using an instrument that has been designed to ensure the success rate of implementation of certification runs. Taking corrective measures for a number of conditions that are considered still need to be repaired or replaced.

REFERENCES

Cockburn, R. M., et al. (2000). Untangling the Origins of Competitive Advantage. *Strategic Management Journal 21 (2000)* (pp.1123–1145).

Fred R David. (2004). *Manajemen Strategis, Edisi Bahasa Indonesia*. Jakarta, PT. Indeks Kelompok Gramedia.

Hitt, Michael A., Ireland, R. D., Hokisson, Robert E. (1997). *Manajemen Strategis, Edisi Pertama*. Jakarta: Penerbit Erlangga.

Lawrence R. Jauch and Wiliam F. Gluech. (1998). *Manajemen Strategis dan Kebijakan Perusahaan.*

Porter, Michael E. (1996). *Strategi Bersaing, Edisi Kedelapan*. Jakarta, Penerbit Erlangga.

Singer A. E. (1994). Strategy as Moral Philosophy. *Strategic Management Journal 15*. Wheelandan Hunger Strategic. (1995). *Manajemen and Business Policy Massachuset.*

Winarni Sri. (2006). *Perubahan Budaya Organisasi*. Majora Edisi.2

Wright, M. Kroll, and J. A. Parnell. (1998). *Strategic Management: Concepts*. Upper Saddle River, NJ: Prentice Hall.

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INFRASTRUCTURE MANAGEMENT M-LEARNING USING LEARNING TECHNOLOGY SYSTEMS ARCHITECTURE

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Abstract

Framework for Learning Technology Systems Architecture (LTSA) is a framework developed by the Institute of Electrical and Electronics Engineers (IEEE) as an international standard to support learning, education, and training in the form of high-level system design and their components. LTSA standard was developed with a view to the development of various systems of learning technologies that have the same plat form, systemic and systematic can communicate, integrate and collaborate across systems worldwide well. Mobile learning (M-learning) is a learning model that uses information and communication technologies, the development of learning model M-Learning adoption of the framework LTSA so that M-learning bring the benefits of the availability of learning materials can be accessed at any time with interesting visualization to improve student learning. Utilization of M-learning better should be supported with good infrastructure and facilities as well. Facilities and infrastructure are good is one of the important resources and foremost in supporting the learning process in schools, on-site training, at home or in places other learning. It is necessary for an increase in the utilization and management so that the desired objectives can be achieved. Mobile learning management infrastructure using LTSA covers planning framework; procurement; maintenance; inventory and removal of infrastructure. Educational institutions, training institutions and other institutions which organize learning activities are required to have the independence to regulate and manage the interests of the institution according to its own needs and capabilities while still referring to existing regulations.

Keywords: Mobile Learning, LTSA, Infrastructure, Management

LITERATURE REVIEW

The development of Information and Communication Technology (ICT) is growing, particularly in the field of telecommunications driving the need for a concept and mechanism of ICT-based teaching and learning becomes more inevitable. The concept of teaching and learning of ICT-based telecommunications field to create a new breakthrough in the world of learning such as learning is done in Mobile or in other words mobile learning by utilizing telecommunications devices, especially mobile devices. This time for the learner (learners) mobile devices are already familiar, even has become part of the lifestyle (Nugroho, Kusumo, & A, 2009).

Mobile Learning (M-Learning) is part of the e-learning or distance learning, providing easy access to a very low cost. A challenge in the development of M-Learning is how to produce the M-Learning is good, not only provide convenience, speed of access, but also provide comfort for the learners understand the material.

Learning Technology Systems Architecture (LTSA) is the result of research conducted by the developed by IEEE 1484 (Sari, A, Hidayati, Informatika, & Telkom, 2009). LTSA is a framework that describes the high-level system design and

their components that are used as the international standard for developing M-Learning. LTSA consists of five layers, namely (Visi Pustaka, 2012):

1. Learner and Environment interactions
   This layer learner focused on the acquisition, transfer, exchange, formulation and discovery of knowledge or information through interaction with the environment.
2. Human – centered and pervasive features
   This layer focuses on the influence that the learner in the learning technology system design.
3. System components
   This layer describes the component-based architecture that is identified at layer 2.
4. Implementation perspective and priorities.
   This layer describes the learning technology systems from various perspectives with reference to the layer 3.
5. Operational components and interoperability
   This layer describes the components and interfaces of generic architecture of information technology-based learning as identified at layer.

The relationships between these layers can be seen in Figure 1, the following (Warnars, 2015).

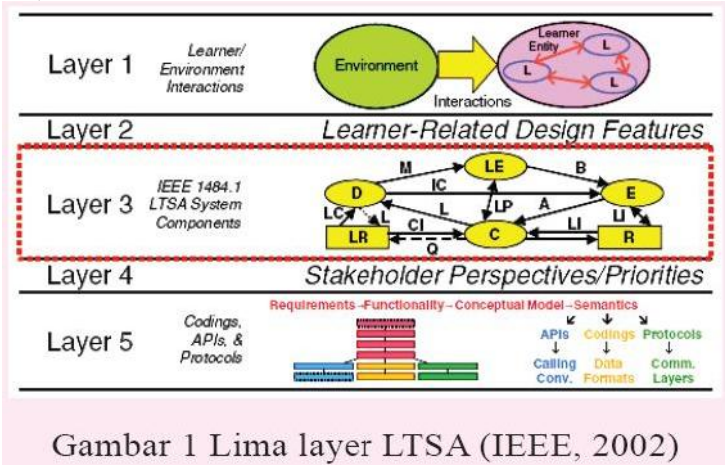

Figure 1: LTSA abstraction-implementation (Warnars, 2015)

Development of M-learning adoption of the framework so that the M-learning LTSA bring the benefits of the availability of learning materials can be accessed at any time with interesting visualization to improve student learning. Utilization of M-learning better should be supported with good infrastructure anyway (Lestari, Timan, & Sunandar, 2008). Facilities and infrastructure are good is one of the important resources and foremost in supporting the learning process in schools, on-site training, at home or in places other learning. It is necessary for an increase in the utilization and management for the objectives expected to be achieved.

Process management facilities and infrastructure of Mobile Learning using LTSA framework there are several stages (Lestari, et al., 2008):

1. Planning infrastructure;
2. The provision of facilities and infrastructure;
3. Maintenance of facilities and infrastructure;
4. Inventory facilities and infrastructure; and

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5. Elimination infrastructure.

Educational institutions, training institutions and other institutions which organize learning activities are required to have the independence to regulate and manage the interests of the institution according to its own needs and capabilities while still referring to existing regulations.

The government through regulation No. 19 of 2005 on National Education Standards relating to standards for school infrastructure nationally in Chapter VII, Article 42 expressly stated that; First, any educational institution shall have the means, which include furniture, appliances education, media education, books and other learning resources, consumables, and other equipment needed to support the learning process on a regular and ongoing. Secondly, any educational institution shall have the infrastructure which includes land, classroom, boardroom education units, space educator, space administration, library room, laboratory, workshop, space production unit, lunch rooms, power plants and services, where exercise, place of worship, a place to play, a place to be creative, and space/place else needed to support the learning process orderly and sustainable (Depdiknas, 2015).

Standard of Facilities and Infrastructure For the M-Learning

M-Learning is designed to be complimented/complement can even be regarded as supporting the teaching and learning process is carried out in the classroom. Because the existence of M-Learning has features, among others (Kustiyahningsih, Purnama, Madura, & Engineers, 2013):

1. The information in the learning process;
2. Ease of access to a source of reference;
3. Communication

Standard infrastructure for Mobile Learning (M-Learning) is based on international standardization of the framework LTSA. Layer 3 on LTSA a normative layer is the layer that is used as a guide to the technical specification of the system in the implementation of M-Learning.

Figure 2 is an LTSA layer 3 on the framework, describes the components contained in the LTSA. LTSA system components can be broken down as follows (Warnars, 2015):

1. The process consists of: learner entity, evaluation, coach, delivery
2. Storage: learner records, learning resources

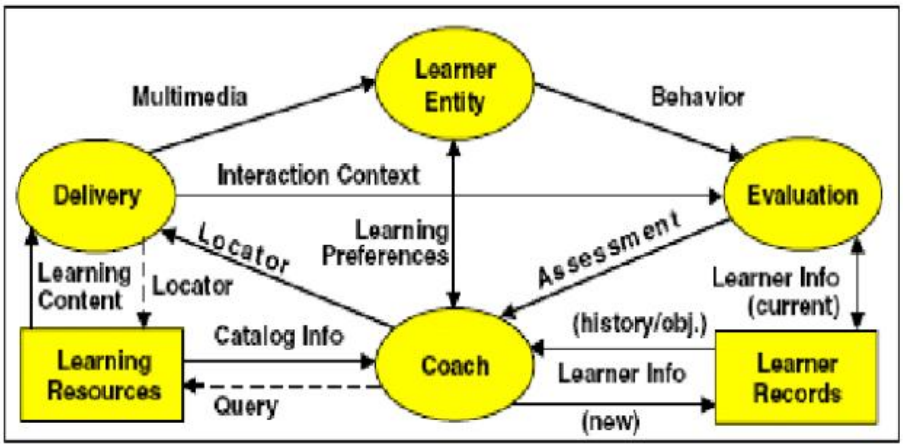

Figure 2: Layer 3 LTSA

Plot: Learning Preferences, Behavior, Assessment information, Performance information, Query, Catalog Info, Locator, Learning Content, Multimedia, Interaction Context

Learning Resource is the storage of material resources, in which there is a variety of subject matter that can be used as a reference. Coach is a means to distribute the material and practice questions of learner Resources provides feedback as well as discussion on each evaluation and received a report on the results of the evaluation of value. Learner Records storing data information such as student achievement, preferences and other types of information. Evaluation is the process that produces an assessment of all the students in the form of input/output. Delivery of teaching materials is in the form of static, interactive, collaborative, and others. The method of implementation process of delivery can vary, for example presentations, questions, and video files. Learner entity is a process of input/output of material, questions and answers. Behavior describes how to use the information about the behavior of the Keyboard, Mouse click, voice response, a written response and others. Learning content, learning content can be identified by the locator, taken by a learning resource, and amended by the delivery system into a system of interactive multimedia lessons. In the M-learning institutions in the data flow Learning Content is material in the form of video and material in the form of files and practice questions. Catalog information, information that describes the learning resources. Catalog information is also known as "learning object meta data". Catalog information is similar to the "card catalog" entries in the library.

Mapping the components of Web-based LTSA architecture defines a standard infrastructure that can be used in the implementation of M-Learning.

Based on Figure 3 the E-Learning infrastructure can be classified into Human Interface, Presentation Tool, and Database courseware and student records.

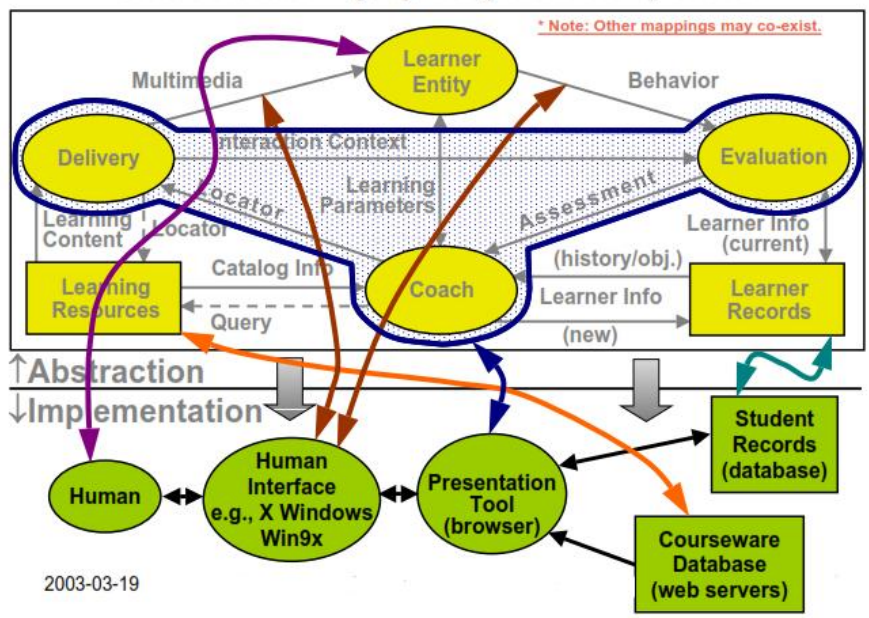

Figure 3: Mapping components LTSA architecture based on Web (France, 2003)

Facilities and Infrastructure Planning M-Learning

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The word is derived from the planning that have meaning draft plan or framework of something that will be done or done in the future (Pusat Bahasa Departemen Pendidikan nasional, 2008). Furthermore, by Dwiantara and Sumarto (2004) stated that planning is an activity of thought, research, calculations, and the formulation of measures to be undertaken in the future, both with regard to operational activities in procurement, management, use, organizing, as well as control facilities and infrastructure (Departemen Pendidikan, 2007).

Basically the purpose of planning is:

1. Avoiding the occurrence of errors and failures unwanted;
2. Improving the effectiveness and efficiency in the implementation.

The mistake in determining the need will result in the implementation of the compromised system will even result in waste. The benefit of planning is:

1. can help in defining objectives,
2. laying the basics and determine the steps to be taken,
3. eliminate uncertainty, And
4. can be used as a guideline or a base to carry out monitoring, control and even vote for later activities can be run effectively and efficiently.

Procurement of Facilities and Infrastructure M-Learning

Procurement is the activities undertaken to provide all kinds of educational facilities in accordance with requirements in order to achieve the expected goals (Departemen Pendidikan, 2007). The procurement is the first operational functions in the management of education facilities. Procurement of infrastructure must be adapted to the needs, both with regard to the type and specifications, quantity, time and place, with a price, as well as resources that can be accounted for. Procurement should be planned carefully to be procured in accordance with what is expected as well as meet the needs of facilities and infrastructure.

There are several alternative ways in the procurement of educational facilities, namely (Departemen Pendidikan, 2007): (1) Purchase; (2) Making Yourself; (3) Acceptance of Grant or Assistance; (4) Hire; (5) Loan; (6) Recycling; (7) Redemption; and (8) Repair or Reconditioning.

The procurement of goods and services should refer to Presidential Decree No. 80 of 2003, which has been enhanced by Regulation No. 24, 2007. Procurement of infrastructure generally through the following procedures:

1. Analyze the needs and functions of facilities and infrastructure;
2. Classify facilities and infrastructure needed;
3. Make proposals procurement infrastructure is addressed to the government for the institution and the foundation for training institutions;
4. If approved it will be reviewed and assessed the feasibility for the approval of the addressee;
5. Having visited and approved the facilities and infrastructure will be sent to schools that will apply for the provision of facilities and infrastructure.

Maintenance Facilities and Infrastructure M-Learning

If the M-learning infrastructure has been purchased, it is to be observed is performing maintenance on these items. Maintenance is done so that every item that we have always used can function smoothly and without much cause interference or

hindrance, then these items need to be treated properly and continuously to avoid the elements of a bully or a destroyer.

Maintenance is an activity to carry out the maintenance and settings for all the goods are always in good condition and ready to be used as a powerful and effective. Maintenance is an activity of preservation and prevention of damage to an item (Ambar & Arum, n.d.). Maintenance includes all the power of continuous efforts to see to it that the equipment remains in good condition. Maintenance starts from discharging the goods, which is the way to be careful in using it. Maintenance of a special nature to be carried out by qualified personnel according to the type of goods in question.

The purpose of maintenance as follows:

1. To optimize the lifetime of the equipment. This is very important especially when viewed from the aspect of cost, because to buy a piece of equipment would be much more expensive when compared to taking care of part of the equipment;
2. To ensure the operational readiness of equipment to support the smooth running of the work in order to obtain optimal results;
3. To ensure the availability of the necessary equipment through routine checks and regular;
4. To ensure the safety of people or students who use these tools.

Inventory of Facilities and Infrastructure M-Learning

One of the activities in the management of learning equipment using Mobile Learning is a record of all equipment owned. Typically, the activity of recording all the gear is called the inventory of fixtures. The activity is an ongoing process.

In general, the purpose of the inventory is the effort perfecting effective management and supervision of the facilities and infrastructure owned by a school. While specifically, an inventory conducted with the following objectives (Departemen Pendidikan, 2007):

1. To maintain and create orderly administration of facilities and infrastructure owned by a school;
2. To save on school finance in both the procurement and maintenance and the elimination of school facilities and infrastructure;
3. As a material or guidelines to calculate the wealth of a school in the form of material that can be valued in money;
4. To facilitate the supervision and control of facilities and infrastructure owned by a school

The inventory of facilities and infrastructure E-Learning includes two activities (Bafadal, 2004): (1) Recording equipment; and (2) Preparation of record/

Both the inventory and inventory of goods not received should be recorded in the receipt book. After that, special inventory items are recorded in the parent book inventory and the book inventory classes. While specific inventory items not recorded in the book inventory and the parent is not a card (it can also be a book) inventor (see Figure 4: Groove recording equipment Domain characteristics of e-learning).

Elimination Of Facilities And Infrastructure M-Learning

In addition to maintenance, it is necessary also to the elimination of the facilities and infrastructure which are considered unfit for use due to age or damage.

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Elimination of facilities and infrastructure is an infrastructure acquisition activity of responsibility applicable to the reasons that can be accounted for. In more operational elimination of equipment and infrastructure is a process of activities that aim to remove/eliminate the infrastructure of the inventory list, because the infrastructure is already considered to be not working as expected, especially for the benefit of the implementation of learning in schools. Elimination of infrastructure has a purpose (Departemen Pendidikan, 2007): (1) To prevent and limit loss or wastage of maintenance costs; (2) Lighten the workload execution of inventory; (3) Freeing space of accumulation of goods; and (4) Freeing goods and responsibilities of workers.

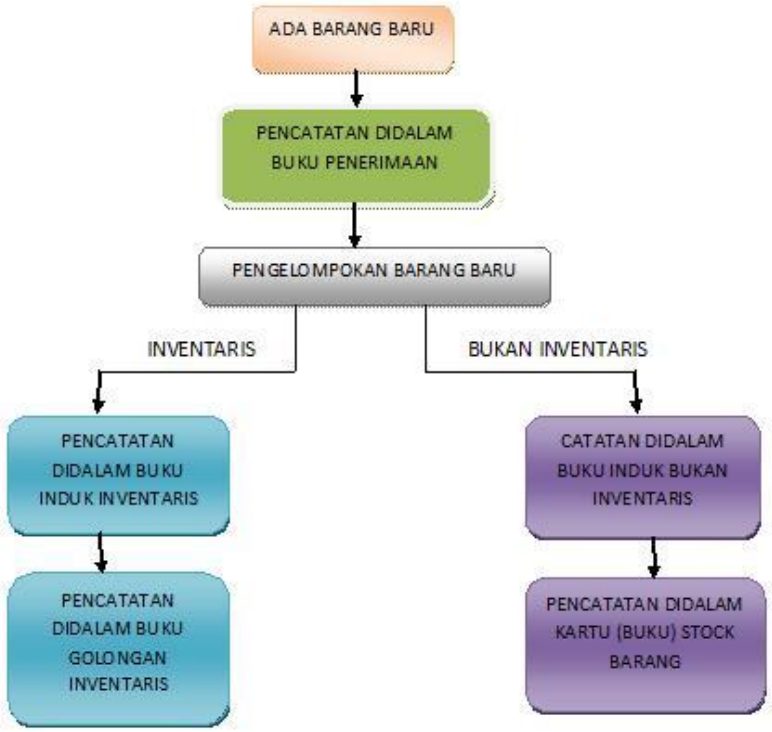

Figure 4: Groove recording equipment (Bafadal, 2004)

Elimination of M-Learning infrastructure that has been unsuitable can be done in two ways: (1) removal of the goods by auction; and (2) removal through extermination. Elimination of the goods to the auction is done by selling goods inventory at the office of the state auction while the elimination of the auction through the destruction carried out by considering factors culling in terms of money. Therefore culling is made with careful planning and made a notification letter to the boss by stating what items are about to be removed. Elimination through culling is done by burning, burial and other.

CONCLUSION

Framework for Learning Technology Systems Architecture (LTSA) is an international standard that is used as the standard in the development of Mobile Learning (M-Learning). LTSA has 5 layers of which 4 layer 1 layer informative and

normative. Layer 3 as a layer serves as the normative standard M-Learning infrastructure.

Standard infrastructure is part of a policy to improve and enhance basic services. While planning activities and infrastructure facilities are required both for short term and long term. It is important to do with the intention that there is a fit between the needs for facilities and infrastructure, the availability of funds, and the usefulness of the items that showed the certainty of direction and purpose. Thus, it is necessary to create a plan that is more mature in accordance with the objectives of the activity to be achieved, to the procurement planning how and where to place the goods, as well as how the treatment process.

In the process of procurement of facilities and infrastructure are strongly encouraged to follow the regulatory guidelines that apply, as well as the procurement of infrastructure must be able to put forward the principle - the principle of transparency and accountability.

The maintenance process is a follow-up to the facilities and infrastructure that have been purchased or held. It is important to be undertaken to optimize the lifetime of the goods and that the goods are ready to be operated when needed. It also needs such as maintenance costs and labor cost allocation can be planned at the same time take care of.

For the sake of administrative order and as proof that the infrastructure is ever held, then do the recording process or inventory. This is important in order to determine the amount of assets and, if necessary for the preparation of regular reports to be done as a form of accountability and facilitate supervision.

On the basis of certain considerations and for the sake of the effectiveness of the presence of facilities and infrastructure, it is necessary to deletion or frequent bleaching on inventory items ever owned. The removal process is done based on existing regulations

REFERENCES

Ambar, W. S., & Arum. (n.d.). *Manajemen Sarana dan Prasarana Pendidikan*.

Bafadal, I. (2004). *Manajemen Perlengkapan Sekolah Teori Dan Aplikasinya*.

Departemen Pendidikan. (2007). *Manajamen sarana dan prasarana pendidikan persekolahan berbasis sekolah*.

Depdiknas. Peraturan Pemerintah Republik Indonesia Nomor 19 Tahun 2005 Tentang Standar Nasional Pendidikan, 1 Depdiknas (2015). http://doi.org/10.1017/CBO9781107415324.004

France, F. (2003). A Roadmap of ICT Standardization and Interoperability for Learning, Education and Training. Retrieved June 29, 2016, from http://www.initiatives.refer.org/Initiatives-2003/_notes/_notes/farance2.htm

Kustiyahningsih, Y., Purnama, J., Madura, U. T., & Engineers, E. (2013). Aplikasi M-Learning Sekolah Berbasis Learning Technology System Architecture (LTSA). In *Seminar Nasional Manajemen Teknologi XVIII* (pp. 1–8).

Lestari, I., Timan, A., & Sunandar, A. (2008). Manajemen sarana dan prasarana di pendidikan anak usia dini. *Manajemen Pendidikan*, *24*(5), 376–381.

Nugroho, M. B., Kusumo, D. S., & A, Y. F. (2009). Analisis dan Implementasi Layer 3,4 dan 5 Learning Technology System Architecture (LTSA) pada Mobile

ISBN 978-602-73030-1-0

Learning. In *Tugas Akhir Fakultas Tehnik Informatika Universitas Telkom* (pp. 1–6).

Pusat Bahasa Departemen Pendidikan nasional. (2008). *Kamus Besar Bahasa Indonesia*. *Statewide Agricultural Land Use Baseline 2015* (Vol. 1). http://doi.org/10.1017/CBO9781107415324.004

Sari, R. A., A, Y. F., Hidayati, H., Informatika, F. T., & Telkom, U. (2009). Implementasi E-Lerning 2.0 Dengan Standarisasi LTSA (Lerning Technology System Architecture). In *Tugas Akhir Fakultas Tehnik Informatika Universitas Telkom*.

Visi Pustaka. (2012). Analisis dan Desain E-Learning Diklat Teknis Pengelolaan Perpustakaan Menggunakan Standar Learning Technology System Architecture (IEEE P1484.1). Retrieved June 28, 2016, from http://www.perpusnas.go.id/magazine/analisis-dan-desain-e-learning-diklat-teknis-pengelolaan-perpustakaan-menggunakan-standar-learning-technology-system-architecture-ieee-p14841/

Warnars, S. (2015). Pemodelan E-Learning Dengan Framework Learning Technology System Architecture (LTSA) pada STMIK Pranata Indonesia. *Jurnal Sistem Komputer*, *5*(1), 31–41.

OPERATIONAL MANAGEMENT ON E-LEARNING IMPLEMENTATION AT UNIVERSITY

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Abstract

One of the skills that must be possessed by the human resources of the 21st century is Contextual Learning Skills, which is defined as a person's ability to undergo self-contextual learning activities as part of self-development (Trilling, et al., 2009). E-learning is a kind of self-learning system that allows delivered teaching materials to learners by using the internet, intranet or other computer network media (Edhy Sutanta, 2009). To apply e-learning, there are at least three fundamental building blocks of e-learning namely infrastructure, systems and applications of e-learning and e-learning content (Edhy Sutanta, 2009). Particularly, in conducting e-learning in higher education, supported factors should be noticed that support the achievement of learning goals. These factors include lesson plans, curriculum standards, learning technologies, model assessment and assessment standards. The management process can generally be divided into three parts, namely lesson planning, implementation and evaluation in the implementation of e-learning, where it should always refer to the quality standards in order to achieve the learning outcomes. Especially with regard to the learning technology, there are some features that should be provided to achieve adequate quality of learning is student resources, individual activities, student collaboration, assignment and assessment, and online learning and teaching. In this case, all the features in the learning technology are the main resource that will facilitate interaction between faculty and students to realize the achievement of learning objectives planned.

Keywords: operational management, e-learning, learning outcomes, college

LITERATURE REVIEW

The development of information technology is rapidly increasing influence in various fields of human life, including education. One form of the application of information technology in education is an online learning system, better known by the term e-learning.

E-learning is a kind of learning system that allows delivered teaching materials to learners by using the internet, intranet or other computer network media (Edhy Sutanta, 2009). Onno W. Purbo explained that the term "e" stands for electronic or in e-learning is used as a term for any technology used to support the efforts of teaching via the internet electronic technology (Antonius Aditya & Onno W. Purbo, 2002).

To apply e-learning, there are at least three fundamental building blocks of e-learning, namely 1) e-learning infrastructure, which can be a Personal Computer (PC), a computer network, internet and multimedia equipment, including teleconferencing equipment when using synchronous learning via teleconference services; 2) Systems and e-learning applications, the system software to virtualize the learning process conventionally includes how management class, the manufacturing material or content, discussion forums, assessment system, examination system and all the features associated with the management of the learning process. The software

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system is often called the Learning Management System (LMS). Many of which are open source LMS that can be used easily and cheaply to be developed in schools, universities or other educational institutions; and 3) The content of e-learning is the content and instructional materials on Learning Management System. (Edhy Sutanta, 2009). Content and teaching materials can be shaped multimedia based content (in the form of interactive multimedia content) or text-based content (text-based content as the regular lesson book). Regular e-learning content is stored in the LMS that can be accessed by students anytime and anywhere.

In practice, the implementation of e-learning requires serious management. The management or operational management is carried out to ascertain whether the processing of inputs into outputs produce the expected learning outcomes. Management of e-learning is the process of structuring an online learning using information and communication technology and involves all components of education in order to achieve teaching objectives effectively and efficiently. Information technology and communications herein include hardware, software and brain ware (Lantip Diat Prasojo, 2010). A major factor in the development of e-learning is the clarity of the purpose of applying e-learning, creative learning design based on the principles of e-pedagogy, students and professors who have the dedication and commitment to the learning process, as well as support from the manager to explore the knowledge, skills and innovative practice (Paulina Pannen, 2005)

DISCUSSION

Learning Plans

Pedagogy or pedagogy in the context of e-learning is quite different from conventional teaching and learning systems face. In this context learners should be able to meet the learning outcomes as befits those attending face to face, armed with the interaction using information and communication technology. Therefore lecturer of the course should do careful planning in preparing the learning plan. The table below can be used as guidance in the preparation of lesson plans (R. Eko Indrajit, 2015). (See Figure 1: The format of the learning achievements of the e-learning system).

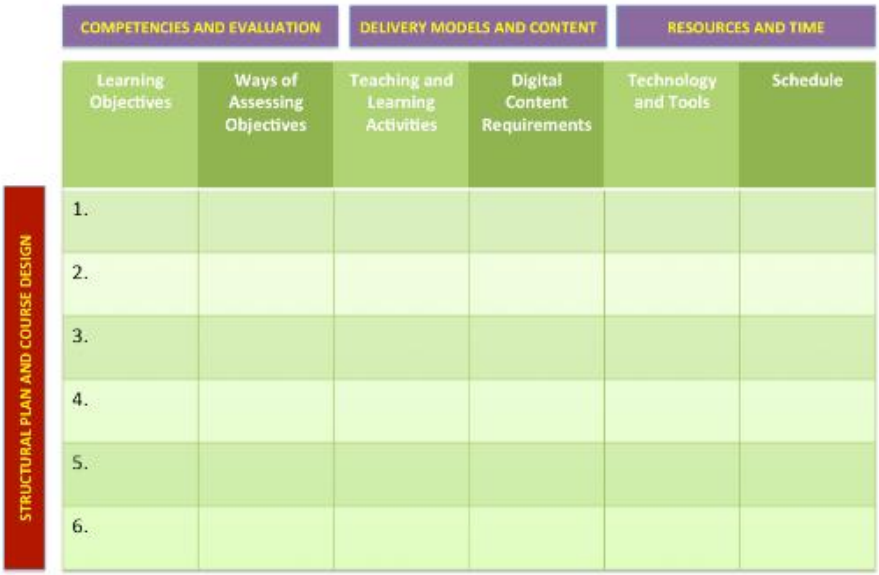

Figure 1: The format of the learning achievements of the e-learning system (R. Eko Indrajit, 2015)

First, the thing to be defined is the achievement of learning, which is a collection targets graduates competence of learners after the relevant thoroughly follow the lecture. The definition of learning outcomes has to be clear and measurable, so that it can assist in evaluating the level of lecturer achievement effectively.

Second, based on the respective achievements of the learning that has been targeted, explained how a teacher can tell if the students in question have been met or not. It should be noted that in the context of e-learning, a teacher does not have the opportunity to meet physically with learners.

Third, the individual targets of these learning outcomes were determined model of e-learning that is relevant to the goals of competence and how to assess/evaluate achievement. So it can be concluded, a lecturer of the course should be able to devise teaching and learning strategies so that learners successfully meet the learning outcomes that have been set by utilizing information technology and communication systems.

Fourth, to support the learning process, lecturer need to determine digital resources what is needed to support the teaching and learning activities to be effective, especially in relation to the content or the main material.

Fifth, in order to support the learning process is supported by digital resources that have been set, the technology infrastructure facilities and devices that need to be prepared to be defined by the lecturer of the course.

Sixth, given that each course has duration of its implementation, must also set a time limit for each of the target fulfilment of learning outcomes that have been set.

Each course should be made learning plan, so that later the accumulation of all the achievement of learners will meet the target competencies required of learners of e-learning at the end of the educational program. Stuffing in a simple table has a function that is approximately equal to GBPP or SAP commonly prepared by the lecturer before conducting the course set. Various other aspects can be added to

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complete, such as the references used, case studies are included, supporting software used, and so forth. What should be emphasized is that in the model of e-learning in which learners undertake independent learning, then learning content should be made based on the topic (learning outcomes) and not by the time the course (as in face-to-face must be completed in 14-17 weeks, with each one meeting per week).

Standard Curriculum

Students' graduate of learning-based e-learning is expected to have a core competency in accordance with the applicable quality standards in Indonesia. E-learning curriculum refers to the curriculum of courses organized by the college. A college can regulate the operation of the course, for example all the meetings conducted e-learning or just a portion of the meetings using e-learning. The college also must consider the model and the characteristics of subjects appropriate for e-learning systems, for example, the theory and practicum. Practicum courses may be more difficult to be implemented only with the online discussion, so that the necessary specialized learning strategies such as video tutorials, simulations, and direct explanation (synchronous) via teleconference.

Learning Technology

As already known, the e-learning learners do not have the opportunity to physically face to face with the lecturers or instructors who teach him. The learning outcomes have been implemented together with other learners who take the classes conventional face-to-face. This implies that the information and communication technology used in e-learning should have a complete feature to support the learning process (see Figure 2: Domain characteristics of e-learning).

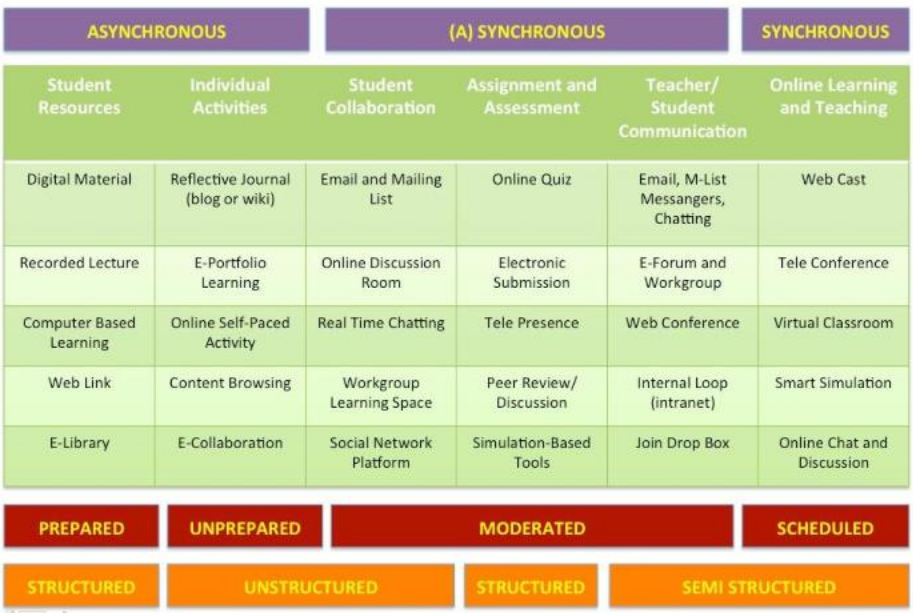

Figure 2: Domain characteristics of e-learning (R. Eko Indrajit, 2015)

Related to the above, there are six (6) features a minimum that must be owned by a supporter of e-learning technologies (R. Eko Indrajit, 2015). The sixth of

these features are within three (3) domain corridor characteristics, namely a) domain Interaction Process, namely: synchronous (online and in real-time, learners can face to face virtually with faculty and other students), asynchronous (learners can access learning materials based on multimedia anytime and from anywhere), and mixtures or a combination of both, b) domain Creative Class Preparation, namely: content that has been prepared in advance and uploaded to the internet (prepared), content prepared in advance because of its nature as a repository open in the virtual world (unprepared), the content to which access will be granted by the authorities according to the context (moderated), and new content can be accessed at a predetermined time (scheduled), c) domain Content Format, namely: follow the flow and logic (structured), sporadic without the relationships that clearly (unstructured), or part of the content is structured and partly unstructured (semi-structured).

Feature 1: Student Resources. Student Resources enables students can obtain information related to the course, which opened in each semester, the announcements related to e-learning, academic calendar and schedule of implementation of e-learning program. Lecturer of the course should prepare learners learning materials in a digital format that has been uploaded to the LMS (Learning Management System). One program Open Source LMS full features is Moodle. The material in various forms such as electronic books, presentations, lecture recording, digital libraries, and other electronic format is structured in such a way in accordance with the target achievement of learning and teaching and learning strategies are applied. Such content can be considered as a web-supplement to facilitate the learning process of students (Tri Darmayanti, 2012). The entire contents of this must be confirmed by the organizers of e-learning that the content has been granted permission to be accessed and distributed to learners in order to not conflict with the principles and laws of intellectual property rights. Given the unique quality of infrastructure at any point learners are, should also be considered their multi-channel or other alternative forms of managing digital content required by these learners (see Figure 3: Student Resources at LMS).

Figure 3: Student Resources at LMS

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Feature 2: Individual Activities. Learners must have access to a variety of sources, both free and proprietary, to support the teaching and learning process. At least, that question must have access to the internet freely, within the meaning of the word have the capability to surf (browse) on the internet. Some campus provides convenience for learners to access various sources of digital libraries from a variety of sources such as universities, research and development centers, libraries digital journals, repositories of corporate case studies, and so forth. The mastery of the techniques of search (searching) effectively in cyberspace must be controlled by learners (see Figure 4: Access to digital library resources).

Figure 4: Access to digital library resources

Feature 3: Student Collaboration. Discussion among learners is important in the context of e-learning methods. Therefore, web-based technology should provide features and facilities for the learners to greet each other, exchange ideas, debate, exchange of materials, and the interaction of cooperative/collaborative such as: mailing lists, chats, discussion forums, newsgroups, and so forth. With these features, web-based e-learning learning model will increase the interest of students; the learning process becomes more interesting because students actively engaged in learning (Muksin Wijaya, 2012).

Feature 4: Assignment and Assessment. During the course, students should be given exercises, assignments, quizzes, and exams that number is sufficient to evaluate the extent of achievement of the learning process are organized. Therefore, the technology should provide various types of models of evaluation and assessment of learners are supported with the ability to guard against fraud in the implementation process.

Feature 5: Teacher-Student Communication. Discourse or conversation between learners with the lecturer of the course is important, both to discuss the things that are substantive and administrative. In this case, the achievement of the objectives of e-learning depends on factors users (teachers and students).

Unfamiliarity and unpreparedness of teachers and learners in the use of e-learning will result in e-learning is not functioning optimally (Timbul Pardede, 2011). Much can be done, ranging from as simple as SMS, phone, chat, and email to the complex ones such as teleconferencing and virtual meeting. This technology should be available because it can be used by lecturers to ensure that learners who participated are the actual individual (not a jockey or others), and to test whether the party concerned has to understand or achieve competency targets, announced or not (see Figure 5: E Communication lecturer with learners on e-learning).

Figure 5: Communication lecturer with learnerson e-learning

Feature 6: Online Learning and Teaching. Technology makes it possible for learners to meet and interact with the lecturer of the course online, though never physically meet face to face. With the feature to hold meetings in parallel in this virtual world, a lot of teaching and learning activities that can be done, such as a) a public lecture or college tuition periodic (scheduled) that can be followed by all students at the same time; b) in parallel collaboration and communication among all participants; c) collaboration and communication of learners with lecturer of the course; d) Gathering personal face between lecturers and learners for various purposes such as consultation, discussion, question and answer, exams, and so forth; and e) intensive discussions between learners with other people who have a context to the subject being taught.

Assessment Model

Assess or evaluate whether students have met the desired learning outcomes is a challenge in the context of the implementation of e-learning. There must be some models are implemented simultaneously in an integrated manner in order to effectively and truly reflect the actual conditions.

There are at least five (5) ways that can be used simultaneously to make an assessment, evaluation or assessment of learners (R. Eko Indrajit, 2015), namely: (see Figure 6: Five forms of assessment on e-learning).

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	Assessment Model	Achievement Indicators	Technology and Tools	Detail SOP and Controls
1.	Online Scheduled vs. Pop-Up Quiz	Score and Accuracy	Personalised Quiz Online	TBD
2.	Cyber Discourse	Participation and Quality	Mailing List, Chatting	TBD
3.	Digital Assignment	Time and Quality	Email, Digital Drop Box	TBD
4.	Scenario-Based Simulation	Rank and Strategy	Case-Based Games and Application	TBD
5.	Virtual Examination/Assessment	Quality and Confidence	Multi-Party Tele Presence	TBD

Figure 6: Five forms of assessment on e-learning (R. Eko Indrajit, 2015)

Online Scheduled vs. Pop-up Quiz. The first is a quiz organized by the sudden (Pop-up Quiz) or scheduled (Scheduled Quiz). Both have advantages and disadvantages. Quiz is scheduled to make learners can prepare in advance, but can give an opportunity to those concerned to commit fraud (dishonest act by asking someone else to do it). While pop quiz by contacting directly via telephone, SMS, chat, email, or other mode will be a shortfall, but not necessarily in question is in a state ready to be contacted (online). Currently the technology provides flexibility for participants to take an online quiz based multiple choice or essay that can be personalized mini (each learner get a different matter because it is the result of random selection by computer) and instantly graded automatically. Applications LMS like Moodle provides a variety of quizzes that can be combined as: multiple choice single (select one correct answer), multiple choice multiple (there are multiple correct answers), mapping pair question-answer, mini-essays in the form of short-answer pattern, sort answers by true, simple multiple choice (true or false), and so forth.

Cyber Discourse. The second is to assess the activity and quality of the students in a discussion with each other to discuss any questions or thinking challenges posed by the lecturers. The participation or activity of participants and the quality of the answer is something that can be judged by faculty to gauge the level of understanding of the material in question is given. Many ways and models online discussions are available and can be utilized, such as: mailing list (with or without moderator), active chats, discussion forums, newsgroups, virtual multi-party meetings, and so forth.

Digital Assignment. The third way is to provide training or assignments that result in the form of electronic files reports (digital file) distributed or transmitted via the Internet. In the context of e-learning, cultivated wherever may not involve a lot of paper, so that the mechanisms and procedures for the collection task can be done effectively, efficiently, and properly controlled (traceability). Time doing exercises or tasks become an important indicator for the set because it will affect the quality of the workmanship by learners. In the context of e-learning, submitting an assignment can

be managed so that when the students are late in collecting their assignment will be rejected by the system. This can help faculty and students to have the discipline of teaching and learning activities.

Scenario-based Simulation. Associated with several courses, there are other ways that can be used is by using simulation applications. In a simulation application that mimics real conditions, students were asked to take a decision based on its understanding or competence. The result was a score obtained can be rated between learners to another. So that based on existing ratings, students determined the value of evaluation. In addition to ranking, other ways that can be used as an evaluation is a strategy that will be learners in considering the challenges that simulated case studies.

Virtual Assessment/Assignment. The final way which is most effective is to do a live interview via face to face using teleconferencing applications, for example Skype, VMeet, and so on. The model of this interview is the most effective because teachers can see and hear directly the ability of learners in addressing the various issues asked by the teacher. This model is often used in the final examinations and absolute (veto) because it can be annulled the results of previous evaluations that have a risk undertaken by another party (jockey) because no controller.

The fifth model of this assessment should be used simultaneously and weights determined in accordance with the characteristics of the course and learning outcomes that exist. Because of its unified and integrated, lecturer of the course should have a careful planning to prepare.

Assessment Standards

Given that student learning outcomes (graduation competency standards) participants in learning based e-learning should be the same as the conventional learning model, the model of evaluation or judgment will be much more rigorous and multi-dimensional. In the implementation of e-learning courses, lecturers assess students using a variety of instruments and indicators, such as: (a) the activity in the following discussion forum; (b) the regularity or frequency will have access to the educational resources available on the application of learning management system is used; (c) the quantity and quality of interaction in the presence of virtual communication sessions with faculty, either in synchronous or asynchronous; (d) the completeness of the collection of duties given; (e) the active participation problems when doing exercises; and (f) the results of midterm exam/quiz and final exams. Overall performance of the students through a variety of models of interaction will serve as an evaluation of lecturers in the final judges of student achievement in the subjects concerned. It should be noted that the overall weight of the interaction model and the evaluation more or less the same because it is holistic.

CONCLUSION

In the conduct of e-learning in particular the implementation of e-learning in higher education, it should be noted factors that support the achievement of learning goals. These factors include lesson plans, curriculum standards, learning technologies, model assessment and assessment standards. The management process can generally be divided into three parts, namely lesson planning, implementation and evaluation in the implementation of e-learning, where it should always refer to the quality standards in order to achieve the learning outcomes. Especially with regard to

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the learning technology, there are some features that should be provided to achieve adequate quality of learning is student resources, individual activities, student collaboration, assignment and assessment, and online learning and teaching. In this case, all the features in the learning technology are the main resource that will facilitate interaction between faculty and students to realize the achievement of learning objectives planned.

REFERENCES

Antonius Aditya Hartanto and Onno W. Purbo. (2002). *E-learning berbasis PHP dan MySQL*. Jakarta: Penerbit Elex Media Komputindo.

Edhy Sutanta. (2009). *Konsep dan Implementasi E-learning.* Jogjakarta: IST Akprindo.

Lantip Diat Prasojo. (2010). Model Manajemen E-learning di Perguruan Tinggi.

Muksin Wijaya. (2012). Pengembangan Model Pembelajaran E-learning Berbasis Web dengan E-pedagogy dalam Meningkatkan Hasil Belajar. *Jurnal Pendidikan Penabur*, ISSN 1412-2588.

Paulina Pannen. (2005). Pengembangan E-learning: Antara Mitos dan Kenyataan, *Semnas Teknologi Pendidikan*.

Richardus Eko Indrajit. (2015). Pedoman PJJ tentang Teknologi Pembelajaran E-learning, Versi 2.0, *Konsorsium APTIKOM AMIKOM*.

Timbul Pardede. (2011). *Pemanfaatan E-learning Sebagai Media Pembelajaran pada Pendidikan Tinggi Jarak jauh*. Universitas Terbuka Tangerang.

Tri Darmayanti. (2012). E-learning pada Pendidikan Jarak Jauh: Konsep Yang Mengubah Metode Pembelajaran Perguruan Tinggi di Indonesia.

Trilling, Bernie, and Charles Fadel. (2009). *21 Century Skills: Learning for Life in Our Times*.

INSTRUCTIONAL INTERVENTION STRATEGIES FOR HUMAN RESOURCE TO IMPROVE PERFORMANCE IN THE ORGANIZATION OF ONLINE LEARNING AT STMIK BANJARBARU

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Abstract

Instruction in workplace to improve the employees and work groups performance is considered as the most valuable, flexible and continuous intervention used in performance improvement intervention.STMIK Banjarbaru opens a non-regular classes which intended for students who has already works, and the lectures or the learning process are held online by E-learning System. E-learning System capable of handling all studying process from the beginning, until final report grade. Learning module, task, discussion, forum, campus news, and final task can simply handle by the E-learning System. The main benefit of E-learning System is the students can learn anywhere and anytime without being limited by time and space as long as they have an internet connection and registered to the system. To improve the Performance of Online Learning Organization, STMIK Banjarbaru interfere the Human Resources with Instructional. Instructional is one of intervention techniques in human performance technology, which is mostly used and considered as the most reliable way to improve the performance of Organization.

Keywords: Intervention, Human Resources, STMIK Banjarbaru, Banjarbaru, E-learning

INTRODUCTION

E-learning defines as instruction delivered on a digital device such ad a computer or mobile device that I intended to support learning. ICT plays a crucial role in the context of this research because it has profound effect on the outcomes of the study process. Teaching and learning focus must change, placing more emphasis on learners who are able to work independently and autonomously.

Human Performance Technology (HPT), which also known as Human Performance Improvement (HPI), or Human Performance Assessment (HPA) uses a wide range of interventions that are drawn from many other discipline, including total quality management, process improvement, behavioral psychology, instructional system design, organizational development, and human resource management.

Human Performance Technology also referred to as performance improvement, emerged from the fields of educational technology and instructional technology.

LITERATURE REVIEW

In Human Performance Technology, the term Instruction; refers to learning, which literally can include learning, coaching, subject, education, teaching, and lecture; is one of crucial techniques of intervention. Molenda and Russell (2006) even describe instruction as one of the most widely implemented interventions in the workplace. Furthermore, Karen L. Medsker (2006) mentions there are at least four reasons that instruction becomes a choice in the workplace interventions in Human

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Performance Technology to improve the performance of individuals and organizations, they are:

1. Many practitioners of Human Performance Technology are experts in the field of learning and teaching, instructional design, training, and education, and they are experts in the design, development, implementation and evaluation of learning;
2. Research institutions often provide learning practices information on how the learning process occurs;
3. The managers and customers often choose a familiar and more comfortable learning as a method of improving the performance; and
4. Learning is really needed in many situations; needs of their business changes, new knowledge, new technology, and the movement of workers created a continuous demand for human to learn.

Instruction in workplace to improve the employees and work groups performance is considered as the most valuable, flexible and continuous intervention used in performance improvement intervention. Molenda and Russell, in Perhing's book, Handbook of Human Performance Technology (2006), place learning into a wider context to improve performance, emphasizing on the selection of suitable learning structure, the selection of learning methods and learning media, implementation as well as assessment and evaluation on the results and impacts of the learning.

The writers do not only provide the knowledge descriptively, but also provide the procedural knowledge in improving learning/instruction as the intervention method to employees. The procedural steps are identified as follows:

- Identify the learning objectives for increasing the capability of the employees and the working group;
- Plan the instructions;
- Choose the learning structure;
- Choose the environment of the learning delivery;
- Evaluate the learning and assessment of learners toward learning outcomes.

A good performance is a performance that follows the procedures according to standards that have been set. To increase productivity in order to be in line with expectations, the inside of the performance should have some necessary criteria, such as a direct role of management participation to be able to control and provide techniques on how to ensure the level and quality, so that the workers can easily work without any sense of burden and the relationship between management and subordinates is getting stronger.

If it is related to educational technology, so the educational technology is a study and ethical practice to facilitate learning and improve performance by creating, using as well as managing the processes and the right technology source. The term of Improving Performance describes the demands of educational technology to offer social benefits from the completion of a useful purpose in an outstanding way. The purpose of educational technology is not only to facilitate learning, but also to improve the performance of individual learners, educators, and designers, as well as the organization.

The Human Resources Management is related to organizational formal plan system to determine the effectiveness and efficiency in realizing the goals of an

organization. Human Resources Management should be defined not by what human resources do but by what they create. Miner (1995) states that Human Resources Management is the process of developing, applying and evaluated policies, procedures, methods and programs relating to the individual in the organization. In addition, Handoko defines Human Resources Management as a process of planning, organizing, directing and monitoring the activities of procurement, development, compensation administration, integration, maintenance and disposal of human resources in order to achieve various goals of individuals, organizations and communities.

Electronic Learning (e-learning) is distance learning which utilizes computer technology, computer network and/or Internet. E-learning enables the students to learn through the computers in their each place without having to physically attend the lectures in classes. E-learning is often understood as a form of web-based learning that can be accessed from the intranet on a local network or the Internet. Actually the e-learning materials do not have to be distributed online either through a local network or the internet, but offline distribution using media of CD or DVD is also included as e-learning pattern.

In this case, the applications and course materials are developed based on needs and distributed through the media of CD or DVDs, and then students can take advantage of CD or DVDs and learn at the place where he or she is. However, in term of the range, of course offline e-learning does not have a range as far as online services of web-based e-learning.

The legal entity of technology-based learning model, so that it is possible to be performed as distance learning, is stated in Article 31 of Law No.20 in 2003 on National Education System, about the distance learning.

Related to E-Learning and Distance Learning, Surono (2009) illustrates it in the following chart:

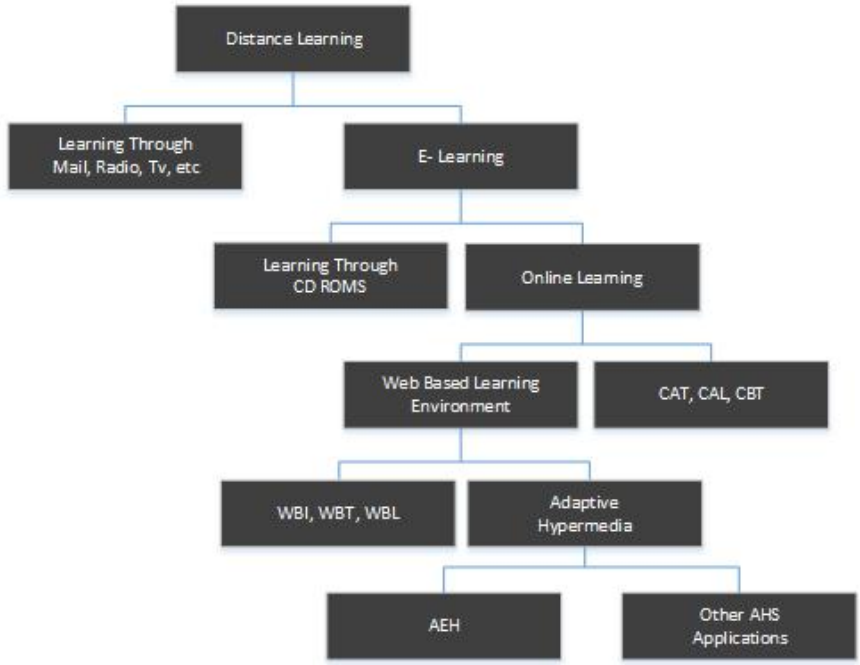

Figure 1: E-learning and Distance Learning Chart

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Based on the chart, it can be seen that E-learning is a part of Distance Learning; meanwhile online learning is a part of E-learning.

DISCUSSION

STMIK Banjarbaru is a private university located in Banjarbaru, South Kalimantan which was founded in 2003 for undergraduate level of study programs of Information System and Informatics Engineering. The number of active students at the end of the even semester of 2015/2016 is about 2000 students; about 150 of the number of students are non-regular students, whose the learning process is held through E-Learning.

In 2014/2015, the average of study period and graduate grade point average between the regular class students and the non-regular class students had a quite high difference as it can be seen in the table below:

Table 1: The Average of Study Period and Graduates' GPA[1]

No.	Class	Average Of Study Period	The Average of Graduate GPA
1	Reguler	9.02 Semester	3.20
2	Non Reguler	9.58 Semester	2.76
The Average of Institution		9.30 Semester	2.98

Source: Document Tracert Study of STMIK Banjarbaru

The Academic Regulations of STMIK Banjarbaru contained in Letter of Decision No.SKEP.233/STMIK-BJB/VII/2013 regarding to the Second Amendment of Academic Regulations, in Article 6 point 1 says that the study load of Undergraduate Program for Information System Study Program as much as 144 credits and for Informatics Engineering Study Program as much as 145 credits can be taken at least 8 semesters and no more than 14 semesters. Furthermore, point 6 says that the maximum study load for a student per semester is essentially determined by the student's academic achievement, as a general rule, a student's study load is 24 credits per semester. But the academic advisors can use the previous semester GPA as a benchmark to determine the maximum number of credits that can be taken by the students. Later, the Strategic Plan of STMIK Banjarbaru about the Annual operational Plan of STMIK BANJARBARU can be seen in the following table:

Table 2: Target and Indicators of Achievement

PROGRAM	ACTIVITY	INDICATORS	2014/2015		2015/2016		2016/2017		2017/2018		2018/2019	
			Base Line	Target	Base Line	Target	Base Line	Target	Base Line	Target	Base Line	Target
IMPROVEMENT	ON TIME GARDUATION	STUDY PERIOD	9.2	9.10	9.00	8.75	8.75	8.50	8.50	8.25	8.25	8.00
QUALITY												
GRADUATES	GPA ACHIEVMENT	GPA AVERAGE	3.10	3.15	3.15	3.25	3.25	3.50	3.50	3.75	3.75	4.00

Source: Document Strategic Planning of STMIK Banjarbaru

From the tables, it can be seen that in the year 2014/2015, the study period average (target: 9.10 - realization: 9.30) and the mean GPA of graduates (target: 3.15 - realization: 2.98) did not reach the target. The average of study period exceeded the target (longer), while the average of GPA of graduates is less than the target

(smaller). Viewed from the class average, the regular class has already reached the target set, while the non-regular class that has not reached the target yet. Therefore, it is necessary to make some improvements in order to achieve the set of target of institutional average. Based on the field observations and discussions with the implementation unit, the online learning is less effective due to the placement of human resources who are less qualified and the organization structure that has not been arranged well. To improve the performance on work units, it requires a good enough organization structure and the placement of resources which is in accordance to the principle 'the right people at the right place'. To meet this objective, the first step that needs to be done is to design an organizational structure, followed by a training on human resources and then based on the results of the training, the next step to be done is the placement of human resources in the organization structure of online learning.

Improving Performance. Association for Educational Communications and Technology, known as AECT (2004), defines Educational Technology as "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources". Based on the definition, it is clearly seen that the main objective of Educational Technology is: To facilitate learning to be effective, efficient and attractive to improve performance.

In addition, in the definition of Educational Technology, it is stated 'improving performance' which refers to the statement about effectiveness; it could be ways that are expected to bring high quality results, products which are expected to create an effective learning process, and changes in competencies that can be applied in the real world. Learning is a series of processes of interpretation based on the experience that already exists, the interpretation, later, is matched with new experiences.

In Molenda and Pershing's writing, the meaning of improving performance is limited on the involvement of technology in the field of education alone. This means that the technology can enhance the role of education to improve the performance and quality of human beings.

Improving the Performance of Students Individually. Educational technology allows the students to improve their performance individually in many ways. Among them is by applying the following ways:

1. The learning experience is created more valuable by focusing on useful purposes, not only for exams;
2. Through the use of technology, the gained learning experiences are expected to be able to lead to a deeper level of understanding. If the learning process is made more valuable by designing it n certain way, the new knowledge and competencies can be transferred better.

Improving Educators and Designers. Some steps that can be used to improve the performance of educators and instructional designers are as the following brief descriptions:

1. Reducing the time of learning. Educational Technology provides insight to help educators and designers to reduce inefficient time in learning through special procedures in the analysis of needs and analysis of learning. Through this procedure the exact objectives are identified. From the exact objectives of the learning process (learning materials) the instructional project

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is started. As the consequence, the educators and designers reduce the ineffective learning time to achieve the desired objectives.

2. Creating a more advantageous learning in terms of cost. A systematic instructional design helps the instructional designers to achieve outstanding favorable results.
3. Creating a friendly and more attractive learning.
4. Respecting for human values. Many innovations in Educational Technology focus on human values. They treat the students not only by feeding them with knowledge, but also by humanizing the learners properly. This is in accordance with the form of innovations made by looking at the students in terms of behaviorism. Briefly, wecan say that the result of innovations in Educational Technology puts the learners as the holders of control in the learning process.

Improving the Performance of Organization. An organization is able to improve the productivity of existing components in it, especially its Human Resources factor by helping them to acquire new knowledge, new skills and creating new more positive attitude. But there is another deeper effort; it is to change the conditions in the organization so that the employees are able to have a better work performance to achieve organizational goals, with or without additional learning. The effort of performance improvement which is considered as non-instructional intervention such as creating better working conditions, providing more adequate working tools, and motivating employees to become more enterprising being labelled as HPT or human performance improvement or Human Performance Technology. The whole interventions, both instructional and non-instructional, in organizations are the efforts to develop or improve the performance of organization.

ANALYSIS AND IMPLEMENTATION

Based on the problems explained in the Introduction, supported by the theoretical review and discussion, some steps related to Human Resources Management are conducted as follows:

1. Re-Design the Organizational Structure of E-Learning.

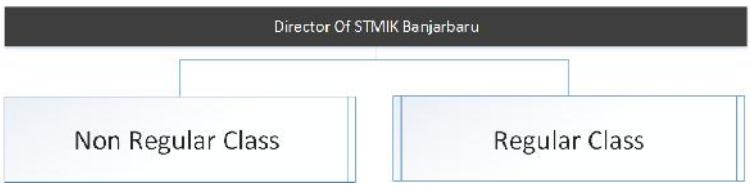

Figure 2: STMIK Banjarbaru Organizational Structure

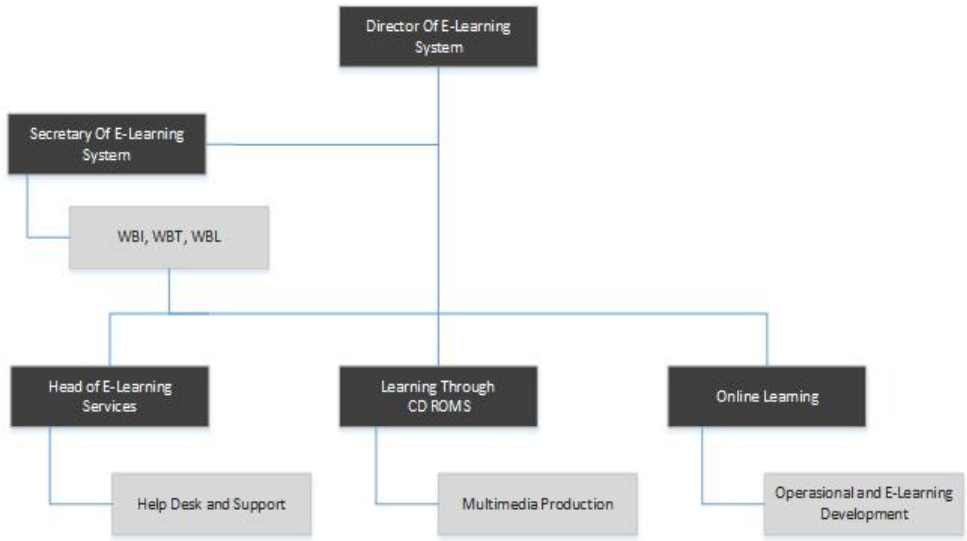

Figure 3: Organizational Structure of E-learning System

2. ***Conducting Training for Human Resources.***The Division of Human Resources Management invites experts to conduct trainings in the field of human resources management, and instructional design experts to provide training to design instructional design of teaching materials and learning strategies appropriate to the objectives to be achieved in the teaching materials. In the trainings, evaluation of achievement assessment achieved by each individual is conducted, and these results are the preliminary recommendations to determine the ability of human resources. The Division will then socialize to all trainees that in accordance with a predetermined plan, there will be some people who have the structural positions. The requirements that have to be met by the candidates refer to the rules of STMIK Banjarbaru about employee affair.
3. ***Requirements and Placements of Human Resources.*** In addition to the general requirements contained in the employment regulation of STMIK Banjarbaru, there are also the particular requirements directly related to the positions which will be occupied on E-Learning SystemOrganization structure of STMIK Banjarbaru, they are:
   a. To be a Director of E-learning System, the required skills are: Leadership, Project Manager and E-Learning System Specialist.
   b. To be a Secretary of E-Learning System (Human Resources and Facility), the required skills are:
      i. Resource Management and Human Relationship Skills;
      ii. Communication Skills;
      iii. Negotiating Skills;
      iv. Marketing, Contracting, Customer Relationship Skills
   c. To be a Head of E-Learning Services, the required skills are:
      i. Instructional Designeris a vital role which is much needed; it is not really popular in our education system yet. The existence of an instructional designer is necessary in an organization that arranges education, both formal and informal. The competencies owned by, and should be owned by, an Instructional designer quoted from

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IBSTPI (2000) are: ProfessionalFoundations, Planning and Analysis, Design and Development, Implementation and Management

ii. A facilitator functions as a mentor who is capable of placing himself or herself in line with the learners. This position requires some attitude, mentioned by Lunandi as follows: Empathy, Fairness, Respect, Commitment and Attendance, acknowledgement of the Others' Presence, and Opening Up. The attitudes needed in self-development or self-coaching of a coach to meet the self-image of a facilitator optimally are: Sensitive to the needs of themselves and the participants or others, believe, sincere and earnest, equality and partnership.

d. To be aCourses Development,the required skills are:
   i. A Graphic Artist is required to have:
      - ✓ Capability to capture Digital Image
      - ✓ Capability to design web pages with multimedia
   ii. A Web Developer is required to have:
      - ✓ Capability to design web pages with multimedia
      - ✓ CGI programming
      - ✓ Java Script Specialist
e. To be a Head of Development of E-Learning Platform, the required skills for each position are:
   i. Project Manager (Time Management Skills, Technical Skills, Leadership Skills)
   ii. Database Administrator (Monitor and Administer database)
   iii. System Administrator should have competencies: 1) Connecting hardware, 2) Performing Installation of Microsoft Windows, Linux, 3) Setting and Configuring Mail Server, File Server, Web Server, 4) Understanding Routing Algorithm.
   iv. Network Administrator should have competencies: 1) Connecting hardware, 2) Administering and configuring the operating system supporting the network administer of network devices, 3) Understanding Routing, 4) Searching the source of errors on network and fixing them, 5) Managing network security, 6) Monitoring and administering network security.

The process of Human Resources placement at E-Learning System Structure of STMIK Banjarbaru is conducted by the Vice Chairman of General Administration and Employee Affair, as a part of Human Resources Management. By fulfilling the requirements and applicable provisions, this division proposes the names of the official candidates to the Chairman of STMIK Banjarbaru to be followed up. After the procedure is fulfilled, a letter of decision regarding to the official appointment is published.

CONCLUSIONS

Instructional Intervention is one of the ways to improve the performance of human resources. To improve the performance of online learning, the following three steps are done by: a) Designing Organization Structure of E-Learning System of STMIK Banjarbaru, b) Providing the instructional training on Human Resources, c)

Establishing the requirements and placements of human resources at the Organization Structure of E-Learning System.

The process of Human Resources Placements at LMS Structure of STMIK Banjarbaru is performed in accordance with the valid rules on the division of General Administration and Employee Affair, in this regard the Vice Chairman of Field II as the Human Resources Management of STMIK Banjarbaru.

Through the interventions, it is hoped that the average of study period and the average of achievement index of non-regular students increase.

Chairman of STMIK Banjarbaru and the board must ensure that the role and function of the Human Resource Management is implemented in accordance with the requirements of Human Resources Management.

REFERENCES

Handoko, T. Hani. (1996). *Manajemen Sumber Daya Manusia.* Yogyakarta: BPFE

Januszewski, Alan & Molenda, Michael. (2008). *Educational Technology A Definition with Commentary*. New York: Lawrence Erlbaum Associates.

Medsker, Karen L. (2006). *Interventions at The Worker and Work Team Levels in Handbook of Human Performance Technology*. Third edition Principles, Practices, and Potential. Pfeiffer an Imprint of Wiley 989 Market Street, San Francisco, CA 94103.

Miner, John B., and Crane, Donald P. (1995). *Human Resourcer Management - The Strategic Perspective*. New York: Harper Collins Publiser.

Molenda, Michael, and Russell, James D. (2006). *Instruction as an Intervention, in Handbook of Human Performance Technology*. Third edition Principles, Practices, and Potential. Pfeiffer an Imprint of Wiley 989 Market Street, San Francisco, CA 94103.

Perhing, J. A. (2006). *Handbook of Human Performance Technology. Third edition Principles, Practices, and Potential.* Pfeiffer an Imprint of Wiley 989 Market Street, San Francisco, CA 94103.

Reiser, Robert A., & Dempsey, John V. (2010). *Trends and Issues in Instructional Design and Technology.* Boston: Pearson.

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IMPLEMENTATION STRATEGY OF E-LEARNING BASED EDUCATION IN ATMAJAYA INDONESIA CATHOLIC UNIVERSITY

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Abstract

Atma Jaya Indonesia Catholic University was established in 1960 and located strategically in Semanggi area. Along with time growth and technology and also students demand, Atma Jaya must renew its educational way and the technology that's been used, especially for the internet that will be give more positive contribution for enhancing students knowledge and intellectual. E-learning is a long distance educational method that used to adapt the learning needs that support conventional learning that constrained with time, distance and cost. E-learning can be used to improve learning quality, efficiency and effectiveness for all lecturers and students. To implement an effective e-learning, Atma Jaya Indonesia Catholic University conducted 4 stages in the process of changing its organizational strategy, namely: Strategic Analysis, Strategic Formulation, Designing Strategic Planning and Implementation Strategy. The e-learning system at the moment has been successfully applied with domain name: elearning.atmajaya.ac.id

Keywords: e-learning systems, Atma Jaya Indonesia Catholic University, Moodle.

LITERATURE REVIEW

The development of information technology nowadays is currently growing very rapidly so that it becomes one of the tools to increase competitive, especially in the education field. Galbarith (1994) argues that organizations should be the basis to gain competitive advantage. According to him, there is no permanent advantage except the ability to manage the organization.

In the service industry, especially in the field of higher education (example: Atma Jaya Indonesia Catholic University), preparation of a good strategy is certainly necessary, but more important is to implement the strategy. In this article, the study focused on the strategy implementation related to the technology-driven implementation due to competition and the student's demands. Technology adoption of in higher education environment is more than just the installation of any software or hardware.

It is common knowledge today that learning should no longer be a tedious problem, as a few decades ago. As a result from the information technology development that increasing rapidly, organizations/universities able to create teaching materials that can be presented with dynamic sounds and images, not boring, contain solid information and can be accessed anytime and anywhere.

Active learning process continues towards become more flexible in relation to time and space. To fulfil the need of the knowledge, time and space is cannot be use as an excuse for an annoying limitation nor does not allow someone to gain a knowledge that they looking for. E-Learning could be an answer for these problems that appear.

E-learning or electronic learning is now gradually known as an option to overcome education problem, both in developed or developing countries. Many people use different terms and meanings for e-learning, but basically e-learning is a learning method that use electronic and internet as the main tool.

Rosenberg (2001) emphasizes that e-learning refers to the use of Internet technology to transmit a series of solutions that can improve knowledge and skills. Even Onno W. Purbo (2002) explains that the term "e" stands for electronic or in e-learning is used as a term for any technology used to support teaching through internet technology.

Three basic criteria that exist in e-learning by Rosenberg (2001):

a. E-learning is network based, that make it capable to improve quickly, store and recall, distribute and to share knowledge and information. This requirement is essential in e-learning, so Rosenberg called it as an absolute requirement;
b. E-learning is delivered to user through media computer using internet standard technology. CD ROM, Web TV, Web Cell Phones and other personal digital tools, though can be used for learning preparation, but it cannot be classified as e-learning;
c. E-learning main focus is for the most comprehensive view of learning, learning solutions that overcome traditional paradigm in training

Atma Jaya Indonesia Catholic University is one of educational service provider that has been established since 1960 and is the only Catholic university located in the central business district in Semanggi area. As a result of technology growth nowadays, it requires AtmaJaya, especially for lecturers to prepare learning material that more attractive to provide a better learning experience for students. Nevertheless, there are still rejections that occur that makes technology application had various successes as the result (ofstrom & Nevgi, 2007). To achieve successful technology implementation, then the application implementation must be in line with the mission and learning strategy that would like to achieve by organization (Bonk, Cummings, Hara, Fischler & Lee, 1999; Gilbert, 2000).

DISCUSSION

Organization Strategic Change Process

Strategy changes is more than just deciding what needed to be change, but also discuss how will the changes can be done and when it must be done (Worley, Hitchin, & Ross, 1996: 16). At Atma Jaya University, one of the requirements that drive the changes is the technology use development, particularly involved with the internet based usage. Internet access progress and its accessibility has make Atma Jaya University to establish an online learning program.

Atma Jaya University use 4 methods/stages for its strategic change process as stated by Worley, et al., (1996):

1. Strategic Analysis
   The analysis was performed on the external environment, current strategy, organization internal state and strategy effectiveness that being conducted (SWOT).
2. Strategy Preparation

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Start by making a decision to reform organization vision and objectives, targeted market, and defining organization process and culture that supports the changes.

3. Strategic planning design
   Defining how the changing process can be done and how to anticipate rejection.
4. Strategy Implementation
   Transition to new orientation that include budget and work schedule arrangement, building lecturers commitment, and allocating existing resource.

Stage one: Strategic Analysis

Changes factor in organization strategic could be defined into four categories: economic changes, industry structure and competition changes, decline in organization performance and initiatives from stakeholders in the organization (Worley, et al., 1996). Atma Jaya also experiencing the same thing and according to Daniel (1997), education industry faces challenges in terms of access, cost and flexibility. Technology implementation will simplify the access, cost reduction for long term and create a more flexible learning process (Dutton & Loader, 2002; Tiffin & Rajasingham, 2003) that able to create a broader access for educational and not limited in class only.

By using SWOT and Five Forces, Atma Jaya University determine its organization position and strength to implement E-learning technology. In addition, Atma Jaya also takes attention for three important factors as follow:

a. external environment: political, social, economic and technology,
b. groups and stakeholders requirement: shareholders, competitors, customers and government (DIKTI),
c. strategies and internal planning business.

Stage two: Strategy Development

Regarding with technology implementation (E-Learning) in Atma Jaya University, there are things that need to be reconsider, such as: students need, competition level, internal organization ability and human resources readiness (lecturers). Atma Jaya University realized that they are facing many obstacles in adopting E-learning as stated by Miller, Martineau & Clark, (2000); Bjarnason, (2003); Surry & Land (2000) such as:

- lack of technology competency from the lecturers,
- there are concerns that the students will be more proficient in technology than the lecturers,
- more convenience in using the old method,
- believe that learning process is more effective to do in the classroom,
- time commitment to learn new technology.

E-learning in Atma Jaya University can be successful if supported by well managed supporting components such as: e-learning infrastructure, e-learning system and application, and well-tailored e-learning content. In E-learning implementations, users or lecturers is similar like conventional learning where lecturers giving the lesson, students accepting learning material and administrator manage administration and learning process.

Stage three: Designing strategic plan

Prior to e-learning implementation, a well prepared planning need to be done with consideration to see if Atma Jaya already has the initial component for E-learning technology. Recently many Learning Management System (LMS) available commercially, both proprietary and open source with its own advantage and disadvantages for each LMS, especially in documentation, backup system availability and readiness, vendor support and customization. In general, LMS has standard features such as:

- Facility of course lists and category, courses syllabus, course material and reference lists;
- Discussion and communication facility, such as discussion forum and mailing list;
- Examination and assignments facility such as online exam, independent assignment and assessment.

Atma Jaya University had chose Moodle from available LMS based on Sabine Graf study on LMS evaluation and comparison with open source base. Sabine stated that Moodle have advantage in Communication Tools, Learning Objects, Management of User Data, Usability and Adaptation category. Furthermore, Moodle customization level is not too difficult even though user doesn't have qualified programming skills. Moodle provide quite numerous template and theme and support 40 languages including Indonesia language.

Stage four: Implementation

Initially lecturers that involved in the workshop that was held by IT Department (PUSKOM) was taught about introduction and understanding for online learning application (e-learning). Along with improved understanding and knowledge, lecturers are sharing their direct knowledge more to each other. To minimize risk, the workshop is held gradually, so the lecturers can adapt them self with the new learning method.

End Result

Today, the e-learning program has run successfully. It can be told by the growth number of lecturers that using this learning method as one of their teaching tools each semester. The lecturers said that doing e-learning has giving them much more flexibility in their teaching time. As shown in the picture below, we can see the usage of e-learning method and the courses that opened has increase more and more each semester.

CONCLUSION

1. Moodle based e-learning system has been successfully applied in Atma Jaya Indonesia Catholic University with its domain name: elearning.atmajaya.ac.id.
2. Moodle e-learning software is considered very suitable to fulfil Atma Jaya requirements, because it meet the criteria such as: open source based, no cost related, and it has all the features that needed.
3. E-learning system is expected to be able to improve human resource in educational field, especially through the use of open-source based information technology and communication. It's also expected to increase capability and operability of learning process.

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4. Addressing to technology development and students need, education organization need to consider the need to implement technology to support its learning process with external environment and internal capabilities consideration.

REFERENCES

Attwell, G. (2007, January). The Personal Learning Environments - The Future of e-learning? *e-Learning Papers, 2*(1), 45.

Graf, S. a. (2005). An Evaluation of Open Source E-Learning Platforms Stressing Adaptation Issues. *Fifth IEEE International Conference on Advanced Learning Technologies (ICALT'05)* (pp. 163-165). New Jersey: ICALT.

Roberts, C. (2008, January). Implementing Educational Technology in Higher Education: A Strategic Approach. *The Journal of Educators Online, 5*(1), 50.

Sardjana, D. (2015, June 26). *kebijakan e-learning perguruan tinggi dalam straegi manajemen pendidikan*. Retrieved June 27, 2016, from www.kompasiana.com: http://www.kompasiana.com/sardjana/kebijakan-e-learning-perguruan-tinggi-dalam-strategi-manajemen-pendidikan_54ff9727a333114f5c50fb29

Suray. (2007, Mei 18). *E-learning paradigma pembelajaran berbasis IT [3]*. Retrieved June 27, 2016, from suray.wordpress.com: https://suray.wordpress.com/2007/05/18/e-learning-paradigma-pembelajaran-berbasis-it-3/

Wheelen, T. &. (2012). *Strategic Management and Business Policy: Toward Global Sustainability*. New Jersey: Pearson Education.

Winarno, & Setiawan, J. (2013, June 1). Penerapan Sistem E-Learning pada Komunitas Pendidikan Sekolah Rumah (Home Schooling). *ULTIMA InfoSys, IV*(1), p. 45.

USE OF MULTIMEDIA LEARNING BY TEACHER IN SMP NEGERI 1 BELITANG MULYA OKUT

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Abstract

The research was conducted at SMP Negeri 1 Belitang Mulya OKUT, where the purpose of this study was to determine the use of multimedia learning by the teacher during the learning process takes place. Thee type of this study is a quantitative study with descriptive approach, the sampling technique was taken as a whole, the data was collected through questionnaire, data analysis is quantitative with the assumption of research that has been set, while descriptive means describe or depict. The study involved 43 teachers as respondents. The results obtained from this study can be concluded that the use of multimedia by teachers at SMP Negeri 1 Belitang Mulya OKUT has been implemented well, it can be known based on the data summary that the use of multimedia based on choice is always and often reached 72.72% with good criterion.

Keywords: multimedia, learning

INTRODUCTION

Developments in science and technology today have brought great influence in the field of education. The influence of these developments is evident in efforts to reform the education system and learning. One example of reform in education by using multimedia technology development is learning. Multimedia learning is able to develop the process of teaching and learning towards a more dynamic. Multimedia learning is defined as anything that can be used to deliver the message, stimulate the mind, feelings, concerns and willingness of learners so as to encourage learning (Munir, 2012: 148). Multimedia learning promises great potential for changing the way a person to learn, to obtain information, to costume information and so forth, and also provide an opportunity for educators to develop learning techniques so as to produce maximum results. Likewise for learners with learning multimedia is expected they will be easier to determine what and how to absorb information quickly and efficiently, resources are no longer focused on the text of a book solely but broader than that. The growing awareness of the importance of the development of multimedia learning must be realized by educators, especially the availability of support from the technology.

The fact in the field indicates that the facilities and infrastructures provided in particular school, that is, SMP Negeri 1 Belitang Mulya OKUT, are complete enough. It can be seen by the availability of a multimedia laboratory that can be used as a learning tool. Means of multimedia support is also sufficient as the availability of computers, LCD projectors and sound output device (speaker). Some educators already use multimedia program as an alternative to the use of media in learning processes such as Microsoft PowerPoint used in presenting the subject matter even though not all of the subject matter presented by multimedia program. Although Means are provided schools already quite full but there are some educators who are

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still rarely take advantage of these facilities in implementing the learning process. It looks that the learning process often only uses the classroom as a learning resource. Another problem in understanding educators create multimedia program is still lacking, it is seen as educators create multimedia using the software displays only power point slides that are not equipped with a varied picture. Another condition of the lack of creativity of educators in teaching media tapped it looks when educators teach educators utilize only guidebook that comes from publishers as well as worksheets that becomes a guide.

Based on the background of the above issues need to be studied further about the "use of multimedia learning by teachers at SMP Negeri 1 Belitang Mulya OKUT".

THEORETICAL BASE

Definition of Multimedia Learning

According to Arsyad (2011: 171), "multimedia is a wide variety of combinations of graphics, text, sound, video and animation". While multimedia learning according to Munir (2012: 2) is defined as anything that can be used to deliver the message (message), stimulate the mind, feelings, concerns and willingness of learners so as to encourage learning.

Excess of Using Multimedia Learning

Excess of using multimedia learning in the learning process by Fenrich in Munir (2012: 113-114) are:

1) The learning system is more innovative and interactive;
2) Teachers will always be required to be creative and innovative in seeking breakthrough of learning;
3) Being able to combine text, pictures, audios, musics, animations, images or videos in a unity most support in order to achieve learning objectives;
4) Increasing the motivation of learners during the learning process to obtain the desired learning objectives;
5) Being able to visualize the material which has been difficult to be explained merely by an explanation or a conventional props;
6) Coaching learners more independent in getting science.

Weakness of Learning with Multimedia

The disadvantages of using multimedia in the learning process according to Musfiqon (2012) are:

1) The cost is more expensive;
2) Teachers are not skilled in operating multimedia;
3) Availability of the device is still limited

RESEARCH METHODS

Types of Research

Research type used in this research is quantitative descriptive approach. According Arikunto (2010: 3), "descriptive research is research that describes or depicts a case, such a condition, circumstances, events, activities and others". In other words, descriptive research is taking the problem or focus on the problems of the

topic as it is. Descriptive study researchers used in this study was to describe the use of multimedia by teachers at SMP Negeri 1 Belitang Mulya OKUT.

Population and Sample

According to Margono (2010: 118) "population is all the data that concern us in a scope and time that we set". Based on that opinion, the overall population is a source for information in the study. Then that will be used as a population in this study was teachers SMP Negeri 1 Belitang Mulya OKUT totalling 43 people.

According to Sudijono (2011: 280) "The sample is a small proportion of the population that should be studied, selected or defined for the purposes of analysis". Meanwhile, According Arikunto (2006: 131) "is partially or representative sample of the population studied." Based on these opinions, sample is part of population to be studied. The samples in this study were done by using "total sampling" for all teachers in SMP Negeri 1 Belitang Mulya OKUT used as a sample.

Technique and Collecting Data

The technique of collecting data used in this research is a questionnaire, with a tool in the form of a questionnaire.

Data Analysis Techniques

Data analysis techniques used in this research is using descriptive-preventative technique. The formula proposed by Sudijono (2011: 43) with the calculation formula as follows:

$$P = \frac{f}{N} \times 100\%$$

Information:

P = the percentage figure
f = Frequency being sought presentation
N = Number of cases (sum frequency/number of people)

In analyzing the data using the percentage formula that were then consulted to the decision-making criteria according Arikunto (2010: 245) as follows:

Table 1: Criteria for assessment

No	Score 100	Description
1	80%-100%	Excellent
2	66%-79%	Good
3	56%-65%	Enough
4	40%-55%	Less
5	30%-39%	Fail

DISCUSSION

Selecting Multimedia

In selecting the multimedia that will be used in teaching and learning by teachers at SMP Negeri 1 Belitang Mulya OKUT, the research is already implemented properly. It is due to consider certain factors in choosing the right so that multimedia will be used in the learning process.

Getting Started Creating Multimedia

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In preparing multimedia production done by teachers at SMP Negeri 1 Belitang Mulya OKUT, it has been executed better. Field data shows that most teachers have to follow the steps of preparation before making multimedia, but there are some steps that have rarely done by teachers in preparing multimedia such as studying and understanding the curriculum and curriculum analysis. Therefore, we recommend that before making multimedia need for good preparation so that multimedia will be made precisely in accordance with the functions and uses.

Creating Multimedia

Based on the analysis of data multimedia production by teachers SMP Negeri 1 Belitang Mulya OKUT, creating multimedia has been executed better. Based on field data, there are some principles that are not fully followed the teacher in making multimedia, i.e., when creating multimedia, teachers did not consider whether it can be used as an individual or group. Therefore, in making the multimedia teacher should consider the use of multimedia that can be used individually or in groups so as to better enable the activities of learners.

Before Using Multimedia

Based on field data, teacher's prior preparation to use multimedia in the learning process in SMP Negeri 1 Belitang Mulya OKUT is already implemented. But, there are some teachers who are still rarely pay attention to the syllabus and curriculum before using multimedia. Therefore, it must be taken into consideration that the use of multimedia in teaching and learning activities in accordance with the applicable curriculum.

Use of Multimedia

Based on field data, the use of multimedia in the learning process has been carried out properly and needs to be improved, especially in combining multimedia form. Therefore we need the creativity of teachers in order to make multimedia more combined in color and shape, so that when the learning process that is presented multimedia can attract more learners and the learning process becomes more interesting.

CONCLUSION

Based on the research that has been done, it can be concluded that the use of multimedia by teachers at SMP Negeri 1 Belitang Mulya OKUT is already performing well. Based on the results of data analysis questionnaire, the results of this study can be summarized as follows:

a. Choosing multimedia according to the percentage of the questionnaire obtained by the data description is achieved by the sum of average choice always and often is 76.74% with both criteria;
b. Preparation of creating multimedia according to the percentage of the questionnaire that is obtained by the data description is achieved by the sum of average choice always and often is 69.77% with both criteria;
c. Creating multimedia according to the percentage of the questionnaire obtained by the data description is achieved by the sum of average choice always and often is 71.83% with both criteria;

d. Preparation of using multimedia according to the percentage of the questionnaire obtained by the data description is achieved by the sum of average choice always and often is 72.09% with both criteria;
e. The use of multimedia according to the percentage of the questionnaire obtained by the data description is achieved by the sum of average choice always and often is 73.26% with both criteria.

The suggestions in correlation with the use of multimedia by teachers at SMP Negeri 1 Belitang Mulya OKUT are:

a. In choosing multimedia, teachers should pay attention to multimedia flectibility to be used, means that multimedia can be used in different situations and durable;
b. In preparation of creating multimedia, it will be better if before making a multimedia, teacher should first learn and understand the applicable curriculum as well as the first to analyze the curriculum. So that multimedia will be used in the learning process right in accordance with the applicable curriculum;
c. In creating multimedia, it should be better if in making the multimedia, teacher must pay attention to the utility of the multimedia. It means that teachers need to consider whether the created multimedia can be used individually or in groups. So when the learning process is used to activate multimedia learning activities of students;
d. In Preparation before using multimedia, teachers need to pay attention to the syllabus or curriculum before using the multimedia;
e. In the using of multimedia, multimedia should be used in the learning process more combine in color and shape, so that it can attract the attention of learners and the learning process becomes more enjoyable.

REFERENCES

Arikunto, Suharsimi. (2006). *Prosedur Penelitian suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Arikunto, Suharsimi. (2010). *Prosedur Penelitian suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Arikunto, Suharsimi. (2010). *Dasar-dasar evaluasi pendidikan*. Jakarta: Rineka Cipta.

Arsyad Azhar. (2011). *Media Pembelajaran*. Jakarta: PT. Rajagrafindo Persada.

Margono. S. (2007). *Metode penelitian Pendidikan*. Jakarta: Rineka Cipta.

Munir. (2012). *Multimedia Konsep dan Aplikasi dalam pendidikan*. Bandung: CV Alfa Beta.

Musfiqon. (2012). *Pengembangan Media dan Sumber Belajar*. Jakarta: PT. Prestasi Pustakaraya.

Sudijono, Anas. (2011). *Pengantar Statistik Pendidikan*. Jakarta: PT Raja Grafindo Persada.

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IMPLEMENTATION OF E-LEARNING IN LEARNING

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Abstract

Advances in technology today and the future, especially in the field of information and communication technology (ICT) make the world more cramped. Interactions between nations, whether is intentional or unintentional intensified. Globalization is one thing that can not be avoided, particularly in the world of education. To obtain an effective and efficient education that was created e learning. E learning can facilitate learners and educators in conducting educational activities and learning. E learning is already widely applied in teaching at every level of education. The purpose of E learning is to facilitate learning and can save time and costs. In its application, E learning can be effective in delivering learning, but there are also constraints in the implementation of E learning towards learning.

Keywords: Implementation, E-learning, Learning

INTRODUCTION

Advances in technology today and the future, especially in the field of information and communication technology (ICT) make the world more cramped. Interactions between nations, whether is intentional or unintentional intensified. Globalization is one thing that can not be avoided, particularly in the world of education. Education is the root of civilization of a nation. Education has become a basic requirement that everyone must have in order to answer the challenges life. For education effective and efficient it was created e learning. E learning can facilitate learners and educators in conducting educational activities and learning.

E learning itself is a distance learning in which learners and educators do not have to come face to face directly to conduct a study. E learning is already widely applied in teaching at every level of education. The purpose of E learning is to facilitate learning and can save time and costs. In its application, E learning can be effective in delivering learning, but there are also constraints in the implementation of E learning towards learning.

LITERATURE REVIEW

E-Learning

Definition and Purpose of E learning

E stands for electronic and electronic means learning which means it is a learning process, meaning that E learning is a learning system that uses electronic media such as internet, computer, and multimedia files. As the times E learning continues to grow and experience a kind of conversion, view the current E learning is a web-based learning or using the internet network. This occurs due to the continued rapid growth of the Internet making it easier every insane people to interact in a different place and time.

E learning is distance learning that utilizes computer technology; therefore it is now learning that developed E is E learning web based applications. E learning

web-based emerging and growing rapidly because it is more easily accessible and also does not require a great capacity to make it. Unlike the case with E-learning in the form of an image file on a computer that is now considered ineffective.

The purpose of E learning

E learning makes learning impossible becomes possible. The point is learning from a different place or distance. Interest E learning is the effectiveness and efficiency of the learning process. E learning is to provide convenience to learners and educators can not meet in person, by e learning, the learning can be accomplished because the reach of the Internet can be accessed anywhere so the cost of learning to be reduced. E learning is designed to facilitate learning because information given e learning on the learner or the E learning is very communicative.

E learning has been widely applied in learning. Many institutions of schools and colleges have done. Learning is done very communicative. An educator gave the task via the E learning and learners do. In E learning there is also a feature that lets students and educators do feedback and question and answer so that learning becomes more effective, but still only E learning has disadvantages because we know that there is not a perfect learning media. Application of E learning in education includes several components. The first component is the infrastructure of e learning. Infrastructure in this research was in the form of personal computers, computer networks, the Internet and other multimedia equipment. At the current infrastructure of learning occurs then it sometimes happens constraints.

Application of E-Learning in Learning

Education and learning are maximize the benefits of ICT in relation to the ability to process and disseminate information. One of the great influences of ICT in education, namely the emergence of a new breakthrough application of education through the internet facility which is often referred to as e-learning.

The implementation of e-learning in education would bring a number of benefits as disclosed by Wena (2009: 213-214), which includes:

a. For students: students will gain the flexibility to learn more optimally and can communicate with teachers more intensively;
b. For teachers: According Soekartawi (2003) in Wena (2009: 213), teachers will: (1) more easily perform updates baha-learning materials which it is responsible in accordance with the demands of scientific developments that occurred, (2) develop themselves or do research cave increase horizons for leisure time possessed relatively more, (3) control the learning habits of students, (4) check whether the students have been working on exercises after studying a particular topic, (5) check the answers of students and notify the results;
c. For schools: (1) will be available teaching materials that have been validated in accordance with their fields, (2) the development of learning content according to its subject, (3) as a practical guide learning implementation in accordance with the conditions and characteristics of learning, and (4) encourage foster an attitude of cooperation between the teacher and the teacher and the teacher with the students in solving learning problems.

In addition, e-learning also has several advantages that make e-learning is superior in its application in the field of education as presented by Simamora (2003) in Wena (2009: 215), includes:

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a. Class does not require physical form, all of which can be built into Internet applications;
b. Through internet educational institutions will be able to focus on programs providing education/training;
c. E-learning programs can be implemented and updated quickly;
d. Interaction can be created in real time (chat/video conferencing) and non real time (e-mail, bulletin boards, mailing list);
e. Can accommodate the entire learning process, from registration, delivery of content, discussion, evaluation, and also transactions;
f. Can be accessed from any location and global nature;
g. The material can be designed multimedia and dynamic;
h. Students can connect to a variety of virtual libraries around the world and make it a media research to improve the understanding and teaching materials;
i. Teachers can quickly add a reference to the teaching materials is a case study, industry trends and projections of future technologies through a variety of sources to broaden the participants' teaching materials.

However, behind a number of benefits and advantages of e-learning in education is also stored a series of accompanying weakness (Bullen, 2001; Beam, 1997) in Rusman (2012: 352), among others:

a. The lack of interaction between educators and learners, or even amongst learners themselves. The lack of interaction can slow the formation of value in the learning process;
b. The tendency of ignoring the aspect of academic or social aspects and vice versa encouraging the growth aspects of business/commercial;
c. The learning process tends towards training rather than education;
d. The changing role of educators from the original master the conventional learning techniques, are now also required to know the technique of learning by using ICT/computer medium;
e. Learners who do not have a high learning motivation are likely to fail;
f. Not all of the available internet facilities;
g. Lack of personnel who know and have the skills operate internet;
h. A lack of personnel in terms of mastery of computer programming languages.

A series of the above drawbacks are also an obstacle or a problem in the implementation of e-learning in Indonesia. Some of the limitations or obstacles that might arise and need to watch out for include:

a. Culture Learning. The use of e-learning requires a culture of self-learning habits to learn. While most of the training in Indonesia motivation to learn is still dependent on the instructor;
b. Investment. E-learning in the end it will save the cost of teaching and training, but requires a very large investment in its infancy, so that if not managed properly will result in huge losses;
c. Technology and infrastructure. E-learning requires a reliable network of computer devices and appropriate technologies. But the availability of technology and infrastructure is still inadequate in Indonesia;
d. Design material. Delivery of content via e-learning needs to be packaged in a form that learning-centric. While this is still very little instructional designer experienced in creating an e-learning package is adequate.

In addition, there is also a line of other problems in implementation of e-learning in Indonesia as revealed by Darmawan (2012: 9-10) as follows: "... one of the main causes is the lack of availability of human resources in the process of technological transformation, infrastructure telecommunications, and the laws that govern them.... ". Thus, it can be concluded that the constraints the implementation of e-learning in Indonesia related to the problem: (a) Infrastructure; (b) Human Resources; (c) Policy; and (d) Financial.

Content and applications

Along with the emergence of a variety of possible obstacles that arise in the implementation of e-learning in Indonesia does not mean that its application was delayed and did not start immediately. However, efforts should be found so that the implementation can be optimized with all the limitations that exist. The effort to do that:

a. Infrastructure. Availability of infrastructure and limited technology can gradually overcome by increasing the procurement of information technology each year. Mimicking the budget policy of Singapore through Singapore's education minister Teo Chee Hean who allocates 2,5 million US dollars for each school for the procurement of information technology, the Ministry of Education Indonesia has also developed the National Education Network (JARDIKNAS) although not yet fully utilized. Additionally while awaiting the readiness of existing infrastructure and technologies as needed, the developer of instructional design for e-learning may temporarily use the option of learning e-learning technology with low but with not rule out learning objectives centered on students who become the principle of e- learning. Consideration of the use of low-constructivism technology can do and attract the attention of students if packaged interactively even though the selection of low-asynchronous communication technology (email, mailing list, etc.).
b. Human Resources. Constraints related to human resources include all the learners involved (students, managers contents/teachers, school management/principals, network manager/technician, and administrators and parents). All SDM has a great influence in e-learning, but the components are fundamental for teachers and students, so that the characteristics or cultural, habitual teachers and students need to be changed and adjusted through various approaches, training and socialization of the characteristics of teachers and students in the conventional to on line.
c. Policy. A system needs to be regulation that set it so that the system is running properly pose no gaps. E-learning is certainly different from the manual system so it needs a boost enforcement of cyber law in the legal world in Indonesia including the use of law of protection of intellectual property rights (IPR) and a law on Information and Electronic Transactions (ITE). In addition, should also be encouraged also in macro policies (related to the existence of the existence of e-learning in the future) and micro (associated with financing and technology development). Macro policies, among others, related to the recognition of e-learning quality standards in education and accreditation while micro policies related to the financing and development of affordable technology to the public.
d. Financial. Financing e-learning is still relatively expensive in Indonesia is also a significant obstacle. Some solution has also been deployed by the government as policy maker as financing free internet via SchoolNet to education and the

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provision of free internet in each district as well as the implementation of an internet package cost set by the provider via broadband unlimited internet package, although it is constrained by the speed of access has. Moreover, also the change in the system of education innovation model "top-down" to "bottom-up" through the school-based management (SBM) although it is also not maximized. And the necessity of positive support from banks or other financial institutions in supporting the information technology industry.

e. Content and Applications. Demand information submitted in person, the place and the right time and the availability of applications to deliver content to users with convenient. To meet these needs, it can be overcome with the development of curriculum based on information and communication technology, the development of materials, syllabus, media, strategies, models and learning methods geared to maximize the use of ICT. Contents provision and application of e-learning in Indonesia has begun designed to start popping out of various contents started e like e-books, e-library, e-commerce, and e-classrooms.

CONCLUSION

From the discussion above it can be concluded that E learning can make learning more effective, but there are obstacles in its application. E learning makes learning more effective because it can help learners independent. Learners play an active role in learning and educator as facilitator. Learning can be done within and at different times. But there are constraints on funding, infrastructure, and also the ability of learners and educators. If you want to create an effective learning using E learning then all educational institutions ranging from the lowest to the highest should work together to build infrastructure and learning about E learning.

REFERENCES

Darmawan, Deni, Dr. (2012). *Teknologi Pembelajaran*. Bandung: Remaja Rosdakarya

Effendi, Empy & Zhuang, Hartono (2005). *E learning Konsep dan Aplikasi*. Semarang: Andi Publisher.

H. Hart, Michael (1982). *Seratus Tokoh yang Paling Berpengaruh dalam Sejarah*. Penerbit: PT. Dunia Pustaka Jaya. Jakarta Pusat.

Iskandar, Maskun. (2011). *Prospek Pembelajaran Bahasa Ditinjau dari Faktor Pendukung dan Penghambat*.

Permana Wijaya, Yoga (2009). *Efektifitas E learning Bagi Mutu Pendidikan Sekolah Di Indonesia*. Retreived from: http://yogapw.wordpress.com/2009/05/14/efektifitas-e-learning-bagi-mutu-pendidikan-sekolah-indonesia/.

Rusman, Dr. (2012). *Model-model Pembelajaran: Mengembangkan profesionalisme guru*. Jakarta: Rajagrafindo Persada

Renaldy Suteja, Bernard., et al. (2008). *Memasukki Dunia E learning*. Jakarta: Informatika.

Satria W, Romi (2003). *Strategi Baru Pengelolaan Situs eLearning Gratis*. Jakarta: Ilmukomputer.

Wena, Made. (2009). *Strategi Pembelajarn Inovatif Kontemporer (Suatu tinjauan konseptual operasional)*. Jakarta: Bumi Aksara

Yani, Ivo (2007). *Penerapan E learning Dalam Pembelajaran*. Retrieved from: http://e-learning.bpplsp-reg-1.go.id/index.php?do=news&id=13.

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STRATEGY MANAGEMENT OF E-LEARNING IMPLEMENTATION IN CORPORATE UNIVERSITY

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Abstract

CorpU or Corporate University is educational institutions owned by the corporation that has different mission, character and needs from regular universities. With focus and learning conditions that are more specific, the implementation of CorpU needs support especially eLearning technology to make it more effective and efficient in the implementation of the classes. A good strategy management of eLearning implementation is heavily needed to ensure operational continuity of the CorpU. The process of creating the learning design appropriate for CorpU needs, identifying and sorting out which ones that are directly applicable, which ones need to be changed, added or created new ones to meet the specific needs of CorpU, setting a learning process that requires interactive interaction, has to be done with an appropriate framework to achieve the learning objectives in CorpU in accordance with the vision, mission and goals of the company.

Keywords: eLearning, Corporate University, Strategy Management

DISCUSSION

Corporate Universities (CorpU)

Training and development is an activity that takes place in an organization and aims to build and enhance the competence and performance of all employees. The training may be basic, functional and leadership. From time to time there is a change both in terms of training providers, training material, or the design of training following changes in the organization. Even though, the changes in the organization is in fact a normal thing because it is a change that is designed, planned and deliberate, in order to improve organizational performance. Therefore the existence of an organization highly depends on the ability to adapt, anticipate and manage changes and act strategically, it can even expand in various forms. Consequently, organizations are required to not just be flexible and adapt to the mobile environment which is very dynamic, but also able to anticipate various forms of changes and proactively arrange various necessary program changes. For that purpose, the Centre for Education and Training (PUDIKLAT), DIVLAT (Training Division), TC (Training Centre) or Learning Centre transformed into a Corporate University (CorpU). Judging from the definition of CorpU, the author cites several opinions to get a reference, among others:

- According to Meister (1998) CorpU can be defined as an educational institution run by a company and "serves as a strategic umbrella for the overall educational needs of all employees and the entire value chain of the company, including customers and suppliers". Thus, CorpU's goal is to transfer knowledge inside and outside the organization;
- According to Robin (1998) CorpU can mean a learning organization and/or an organization that encourages learning in the organization;

- According to Mark Allen (2002) CorpU is an education entity as a strategic tool that is designed to assist the organization in achieving its mission by conducting individual development (personal development) and organizational learning, knowledge and wisdom;
- Pattinger (2002) Strategies and initiatives to improve the activities of an organization through an emphasis on developing the ability of capacity and quality.

Impact of Corporate University

Reigeluth Pershing and Park (1998) put forward reasons why should become CorpU as follows: (1) The point of view based on the resources to respond to the dynamic change of learning environment better (2) Point of view based on developing specialized knowledge related to corporation (3) The importance of better thinking systems and the relationship between the work components.

Many multinational companies develop CorpU as a model in creating a learning organization that aims to boost the performance of the company's business. In general the roles of CorpU which have a direct impact on the progress of the company are:

- provide the right resources in the right position and at the right time,
- develop learning processes of the employees that has an impact on increasing the company's business performance,
- accelerate the deployment process and improving the competence of employees in accordance with the demands of the business environment.

The existence of CorpU is expected to assist the organization in achieving its objectives and address issues that arise in the organization such as the routine work that makes the productivity of the company decrease, the business runs out due to the lack of anticipation of the decline, many employees work not in accordance with the competence so they feel they have excessive work load.

From the description above it can be concluded that the main difference between Corporate University and Training Center which has been owned by many companies is that Corporate University is designed to align with the strategic initiatives of the company, while Training Centre tends to focus more on opening training classes demanded by employees of the company (Franzee, 2002).

The concept of Corporate University has long been implemented in some developed countries like the United States such as Crotonville Institute owned by General Electric (1953) and Hamburger University owned by McDonalds (1962), but the notion of Corporate University and their scopes has not been standardized and are still very diverse until now. This diversity ranging from aspects of the target participants (internal employees of a company and external participants), aspects of the scope of services (training only, training plus managerial development, training leading to academic level) and other aspects.

Status and relevance of eLearning in Corporate University

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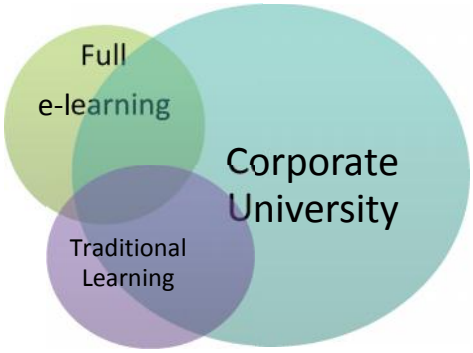

Figure 1: Status of eLearning in CorpU

Along with the rapid development of information technology, demand for alternative methods of learning also increases exponentially and eLearning becomes one method of learning that is most sought after by company. In this case CorpU provides training to employees and create a learning environment that is collaborative because essentially eLearning is a technique designed to provide learning solutions by using appropriate technology. With the opinion of Chen (2008) which says that eLearning can be defined as a combination of technology and learning delivered by using information technology, while based on the type eLearning can be grouped into: Purely Online, Blended learning, Hybrid Learning. Other forms of eLearning include instructor-led group, self-study, self study with Subject Matters Experts, web-based, computer-based (CD/DVD ROM).

Table 1: Training vs CorpU

Training	Dimension	CorpU
Limited access (in a class room and at given time)	Access	Can be accessed from anywhere and anytime
Limited to certain participants	Participant	Flexible to all participants
Improving technical skill and business	Content	Improving competence with wide scope through eLearning
Conducted by instructor and test sinchronous (at the same time)	Delivery	Learning process and test can be done asynchronous (not at the same time)
Openly with manual processes not related to the training curriculum and specific requirements	Registration	Based on curriculum needs by online through Learning Management System (LMS)
Usually reactive	Focus	Mostly in proactive way
Based on the schedule of the learning process in a given time	Frequency	Continuous learning process could be anytime
Normally conducted by specific function of staff	Operation	Performed by a separate business unit that can generate revenue
Untuk meningkatkan atau mengembangkan keterampilan	Outcome	Meningkatkan kinerja secara keseluruhan
The ability to generate revenue and limited participants	Revenue	Having the ability to generate a substantial income via online

Tactical	Scope	Strategic alignment with the business unit

Implementation of e-Learning in Corporate University

According to Adkins (2011) the global nature of business today has led many companies to rely on eLearning as their future because of its ability to reach a large group/more people in different areas or countries, reduce costs, reduce the environmental impact of business travel and deployment of efficient information, eLearning has become a learning method favored by many people because of the global reach and accessibility.

With just a click on the Internet, learning through eLearning can take place in accordance with the nature that can be done anywhere (ubiquitous), at any time is not within a certain time limit (asynchronous) with efficient cost and can be simulated Several benefits of eLearning include:

(1) a reduction in training costs because the method of face to face can be replaced with a virtual training solutions (cost efficiency),
(2) training solutions can be tailored to the needs and character of employees,
(3) anability to maintain a record of training detail, a personalized employee performance, training needs, and other related information,
(4) an ability to produce custom-made training materials and can be simulated,
(5) an ability to provide access to accurate sources of training and renewable that has been tested systematically by subject matters experts,
(6) An availability of classroom-based selection and online training (hybrid).

E-Learning has become a central instrument of scientific teaching in today's business climate because companies have adopted it as part of their business operations.

According to Clarke and Hermens (2001), the development of eLearning in companies triggers the increase of demand for education and training, and the need for higher bandwidth to access advanced technologies, as well as the use of digital convergence and adaptive technology, therefore eLearning encourages the increase of latest technological innovations, and sophisticated communication systems.

The increases of eLearning usage in CorpU in accordance to the request from the company leaders ultimately affect the work environment. And the company's leaders must ensure that the implementation of eLearning is the most appropriate method, in accordance with the scalability, accessibility, actuality of the company.

Therefore it can be concluded that the policy application of eLearning in CorpU should receive full support and proactive leadership from the management as the leader of the company so all learning activities can be successful and effectively in line with company policy and supporting the performance.

Management of eLearning Strategy in CorpU

To achieve the target of successful application of eLearning in CorpU is not as easy as imagined because in addition to full support of the management, effective support from the dimensions of learning facilities is also needed.

In learning through eLearning, the technology used becomes a key factor that is integrated with the learning process, mentor, lecturer both internal and sources of knowledge and skills from outside parties which is related in the form of cooperation and relationships that add value among stakeholders.

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With the right management strategy it is expected to be able to manage all the factors that affect the success and how effective is the management should be able to press the flaws and threats and should elevateexisting strengths and opportunities/benefits in the implementation of eLearning in CorpU. The author tries to map the application of learning factors as shown in the table below:

Table 2: SWOT Analysis

Strength e.g. Cost efficiency Scalability Custom made Ubiquitous Asynchronous	**Weakness** e.g. Interactive discussion Qualitative evaluation
Opportunity e.g. Technology Material	**Threat** e.g. Quality control Suitability

According to Kant (2001) there are eight dimensions that influence the successful implementation of eLearning in an organization.

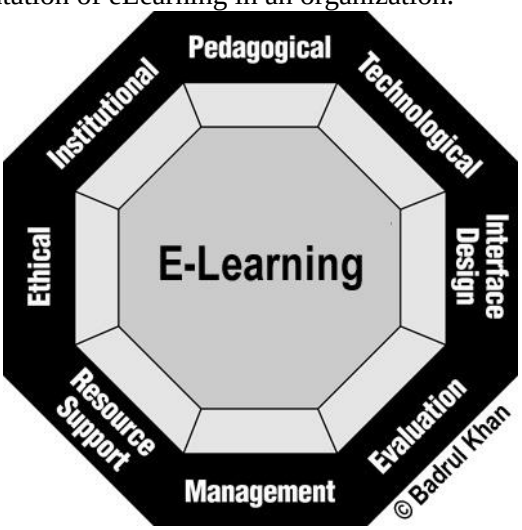

Figure 2: eLearning Framework

The eight dimensions are Pedagogical, Technology, Interface Design, Evaluation, Management, Support Resources, Ethics and Institutions. Institutional dimension issues related to administrative matters (e.g. organization and change, accreditation, budgeting, and return on investment, information technology services, instructional development and media services, marketing, reception, graduation, and alumni affairs); academics (e.g., faculty and supporting staff, instructional affairs, workload, class size, compensation, and intellectual property rights); and student services (e.g., services of pre-registration, coursea and program information, orientation, advising, counselling, financial aid, registration and payment, library support, bookstores, social support networks, tutorial services, internships and

employment services, and other services) related to e-learning.eLearning pedagogical dimension refers to teaching and learning. This dimension addresses issues concerning the goals/objectives, content, design approach, organization, methods and strategies, and environment e-learning media. Technological dimension of Kant eLearning frameworks address issues of technology infrastructure in eLearning environment. The planning of infrastructure, hardware, and software are included. Interface design refers to the look and feel of the learning program. Dimensional interface design includes page and site design, content design, navigation, and usability testing. ELearning evaluation includes assessment of learners and evaluation of instruction and learning environment. eLearning management refers to the maintenance of the environment and distribution of learning information. Dimension of resources go over online support (e.g., learning support/counselling, technical support, career counselling services, other online support services) and resources (for example, both online and offline) which are required to foster meaningful learning environments. Ethical considerations of eLearning relate to social and cultural diversity, differences, geographical diversity, learner diversity, information accessibility, etiquette, and legal issues (e.g., policies and guidelines, privacy, plagiarism, copyright).

Examples of eLearning implementation

Here is an example of how eLearning can support the needs of CorpU character, for example:

- eLearningcan overcome obstacles of CorpU students who do not have much time to follow the pattern of learning in classroom, eLearning provides a solution for learners to follow the program asynchronous (not necessarily the same time between faculty instructors and learners) and ubiquitous (anywhere);
- eLearningcan help for the needs of case study discussion, but the discussion and the study are more effective in traditional interactive discussions (face to face model) because it requires the participation of all participants at the same time (hybrid eLearning);
- Flexibility in teaching materials;
- Implementation cost saving;
- Scalability.

CONCLUSION

The conclusions of the study are:

- CorpU has the characteristics and needs of different learning with regular universities. Some of the characteristics and needs are an opportunity to use eLearning solutions;
- eLearning offers the opportunity to learn on line at any time and from anywhere, known as ubiquitous computing as one of the characteristics where the students have very limited time to be able to follow the learning process in the classroom;
- However the application of eLearning should also consider the need for a deeper discussion as an example in the case study of particular teaching materials in this case eLearning remains to be equipped with face to face learning in a group (hybrid);

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- Teaching materials of eLearning for CorpU also need to be adjusted to requirements which are different from regular university, it needs attention when eLearning content uses common materials from regular universities. The results of the case study discussion face to face can become a reference for eLearning material resulting in the enrichment process of teaching materials as a result of the learning process;
- This requires the implementation of a working mechanism to ensure the content of teaching materials is kept updated and qualified (content management).
- Implementation of eLearning does not eliminate the need for monitoring and evaluation of teaching and learning process;
- eLearning can be a good solution for the corporate university who need educational programs that are efficient and well-targeted.
- Eight dimensions to ensure the success of e Learning helps to plan, develop, implement and evaluate CorpU eLearning.

REFERENCES

Adkins, S. S. (2011, June). *The US Corporate Market for Self-paced eLearning Products and Services: 2010-2015 Forecast*. Ambient Insight Research.

Allen, Mark. (2002). *The Corporate University Handbook*. New York: AMACOM.

Clarke T, Hermens A. (2001). Corporate developments and strategic alliances. In e Chen, E. T. (2008), *Successful ELearning in corporations. Communications of the IIMA: Vol. 8, No. 2, 45-II.-learning'*. Education & Training.

Khan, B. H. (2001).*A framework for Web-based learning. In B. H. Khan (Ed.), Web-based training*. Englewood Cliffs, NJ: Educational Technology Publications.

Meister, Jeanne. (1998). "Ten Steps to Creating a Corporate University." *Training and Development.*

Reigeluth, C. M., Pershing, J. A., & Park, S. H. (1998). *A new paradigm for corporate training*. Strategic Human Resource Development.

ResearchGate McAteer, Peter & Pino, Mike. (2011*), Business Case for a Corporate University*. Corporate University.

Tannir, Akram. (2002). *The Corporate University Model for Continuous Learning*. Training and Development.

IMPLEMENTATION OF MOBILE LEARNING IN THE DEVELOPING COUNTRIES

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Abstract

The use of portable media such as Smartphone, iPhone, PCTablet to access the online learning system are busy talking and used in developed countries like the United States and developing countries, not least in Indonesia. Use of Mobile Learning as supporting the teaching and learning process in felt could add flexibility in learning activities. How schools respond to the growth of mobile devices will affect a generation of students and their readiness for college and entering the workforce. Penetration of mobile or mobile device usage growth estimated to grow five-fold between 2013 and 2019. While the consumption of mobile data is expected to grow more than eight-fold in the span of years the same, making this figure as one of the fastest growth rates in the world.

Keywords: Portable Media, Mobile Learning, Online Learning

INTRODUCTION

M-Learning (mobile learning) is an approach to learning that involves tools (device) moves like mobile phones, PDA, laptop and tablet PC, where learners can access materials, referrals and applications relating to subjects without being limited by space and time, wherever and whenever they are.

The content of learning in m-learning has the kind of assortment. Content is strongly associated with the device's ability to display or run. The diversity of this type of content requires developers to create content that is appropriate to the characteristics of the device or user. Content that is quite interesting is a software application installed on the device. The software can be customized as needed so it will be easy and intuitive to use. Application software is also able to incorporate other contents such as text, audio and video so that it becomes more interactive.

Mobile learning will be quite appropriate when applied to the learning process. As all know the average learner in the school environment (SMA) has a mobile phone, which has the features described above. Mobile is employed learners at present minimal features MP4 and MP3, it can be used to implement m learning in the learning process. Another thing to consider in the development of m-learning is that not all content conventional teaching and learning content e-learning will be transformed into the content of m-learning, because only the content that supports and there are applications on the device of movement that can be applied to mobile learning the learning.

LITERATURE REVIEW

Mobile Learning

Mobile learning (M-learning) is a learning model that utilizes information and communication technology. On the concept of learning M-Learning brings the benefits of the availability of teaching materials that can be accessed at any time and

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an interesting visualization. M-Learning is the delivery of electronic learning materials on mobile computing devices to be accessible from anywhere and anytime. In general, mobile devices such as digital cellular phones and PDAs. However, more generally can take it as any device that is small enough; you can take all the time in everyday life, and which can be used for some form of learning. This small device can be seen as a tool for accessing content, whether stored locally on the device and can be reached via interconnection. Mobile Learning can be defined as a facility or service that provides electronic information in general to learners and the educational content that will help meet the knowledge without questioning the location and time. System M-Learning utilizes the mobility of a handheld device/mobile, such as mobile phones and PDAs, to provide a learning function that can be done anywhere and anytime.

M-learning (mobile learning) has become a new way of learning that allows learning to do mobile by using mobile devices, particularly mobile phones (mobile phones). Mobile learning (m-learning) refers to the use of the device/device information technology (IT) handheld and mobile, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning. M-Learning is part of the electronic learning (e-Learning) so that, by itself, is also part of the distance learning (d-learning). Distance learning/distance learning has grown quite a long time, even since the days when Isac Pitman feel the lack of correspondence teaching at the beginning of the end of the 1840s.

Characteristics of Mobile Learning

M-Learning has its use respectively. For example, some systems can only be used within the university or company, and at the same time, other systems can be used more widely outside educational institutions. Therefore, it is necessary also their classification M-Learning system to facilitate the selection of M-Learning system to be used by a party. Some of the general classification of the M-Learning system is divided based on the following indicators:

1. Type of supported mobile devices: notebook, Tablet PC, PDA, smart phone, or mobile phone;
2. Type of wireless communication that is used to access the learning materials and administrative information: GPRS, GSM, IEEE 802.11, Bluetooth, IrDA;
3. Support education in a synchronous and/or asynchronous, whether users can communicate synchronous (chat, voice communication) or asynchronous (e-mail, SMS) with the instructor;
4. Support for E-Learning standards;
5. Availability of the permanent internet connection between MLearning system with the user;
6. The location of the user;
7. Access to learning materials and/administrative services.

Similarities and Differences Mobile Leaning and E Learning

Technology E-Learning is no stranger to this time. Rapid technological developments had regenerates a new thing with the birth of a mobile learning approach known as M-Learning. But the one that became the subject of conversation is what is the difference between M-Learning and E-Learning, and how interest in the relationship between them. E-Learning is an approach to the delivery of content-

learning content and their interactions through all the media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. E-Learning tends to use a Personal Computer (PC) and the Internet as the main medium, while the M-Learning likely to use mobile devices such as mobile phones, smartphones, PDAs, and so forth. When comparing between the PC and mobile devices, there are many different things that are found. These differences include features, functionality and comfort even on any device. Some of these differences are: (1) Exodus is the size and screen resolution capabilities, and others; (2) Put i.e. keyboard, touch screen, voice input; (3) Processing capabilities and memory; (4) Applications supported; and (5) The media type.

When tried to move the services provided by the eLearning platform into service in M-Learning platform can be seen that some things must change to meet the limitations of small devices, and some can not be kept within the limits of a particular context. But on the other hand the new service can also be raised, which is triggered by the mobility of mobile devices. M-Learning system has several advantages compared with eLearning systems, namely:

1. Portability: mobile devices more portable and easier to use to make notes or enter data anywhere;
2. Supporting learners: the current generation is more like mobile devices such as PDAs, mobile phones, smart phones, tablet and handheld games;
3. Increasing motivation: the ownership of a mobile device tends to increase the commitment to use and learn;
4. Broader reach: mobile devices tend to be cheaper so it can be affordable by a wider public;
5. Timely learning: improving work performance/learning according to learners' needs.

In terms of connectivity, unlike the E-Learning, which is considered to have a connection that is always connected, M-Learning can be delivered in three ways:

1. Pure connection is when a mobile device can be always connected to the internet. Today there are quite a lot of ways the technology for mobile devices to connect to the Internet;
2. Mobility is pure when no connection is available so that all the data required applications must be uploaded beforehand in the device and used offline;
3. A combination of both of connection pristine and pure mobility.

Advantages and Disadvantages of M-Learning

Some of the advantages of M -Learning compared to other learning methods:

- can be used everywhere, even at a time when-else,
- most divice move has a price relatively cheaper than the price of a desktop PC,
- the size of the device smaller and lighter than a desktop PC,
- is expected to include more learners as m-Learning utilizing technology that is used in everyday life. Interactive applications that already can be downloaded easily and for free.

Despite having several advantages, m-Learning will not be fully implemented. This is m-Learning has limitations, especially from the side of the device. Limitations of mobile devices are as follows: (1) Processor; (2) Capabilities memory; (3) Capacity the display screen; (4) Battery limitations; and (5) Users should have the ability in the field of technology.

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Development of Mobile Learning in developing countries

Everyone knows that Southeast Asia is a region that is growing rapidly in terms of population and national income, and mobile learning is not an exception. Mobile penetration or development of mobile device usage estimated to grow five-fold between 2013 and 2019. While the consumption of mobile data is expected to grow more than eight-fold in the same span of years, make this figure as one of the fastest growth rates in the world.

In addition, Southeast Asia is a region which is very "mobile". Because the technology of mobile devices and networks in this region is much more advanced and faster adoption than traditional computers. Almost everything created in Southeast Asia in the form of mobile. In this case, including the realm of payment, agriculture, health care, and of course learning. New trends in the world of eLearning today is known the existence of the term Mobile Learning, the use of portable media such as Smartphone, iPhone, PC Tablet to access the online learning system are busy talking and used in developed countries like the United States and developing countries, not least in Indonesia. Use of Mobile Learning as supporting the teaching and learning process in felt could add flexibility in learning activities.

Less than a decade, mobile technology has spread to the farthest corners of the planet. From ser 7 billion people on Earth, six billion now have access to a working phone. Africa, which has a mobile penetration rate of only 5% in the 1990s, is now the second largest and fastest growing mobile market in the world, with a penetration rate of over 60% and climbing.

Phone advancing the standards of developed countries. Most people in developing countries calls "feature phones," which are less sophisticated and powerful than a smartphone and has fewer features. But they have a numeric keypad, and can access the internet on the small screen. Another type of mobile technology has spread to all corners. In areas where schools are not able to accept the traditional educational materials, mobile devices have changed all this. One library in Ghana who do not have books on the shelves, but now has an e-reader, giving students access to the village to hundreds of books that could never be physically delivered to the library.

However, UNESCO reported that 250 million students worldwide can not be read, write, or count. More than 775 million adults-64% of them are women still have deficiencies in reading and writing skills, the lowest rates in Sub-Saharan Africa and South and West Asia.

How does the school respond to the growth of mobile devices will affect a generation of students and their readiness to college and entering the workforce? It also will impact on teachers, administrators, and staff in carrying out their work.

CONCLUSION

M-learning (mobile learning) has become a new way of learning that allows the learning can be made mobile by using a mobile device, especially mobile phones (mobile), Mobile learning (m-learning) refers to the use of the device/device information technology (IT) and mobile handheld, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning. M-Learning is part of the electronic learning (e-Learning) so that, by itself, is also part of the distance learning (d-learning). Distance learning has grown quite a long time, even since the days when

Isaac Pitman feel the lack of correspondence teaching at the beginning of the end of the 1840s.

Everyone knows that Southeast Asia is a region that is growing rapidly in terms of population and national income, and mobile learning not the exception. Mobile penetration or development of mobile device usage estimated to grow five-fold between 2013 and 2019. While the consumption of mobile data is expected to grow more than eight-fold in the same span of years, make this figure as one of the fastest growth rates in the world.

REFERENCES

Gary Woodille. (2011). *Mobile Learning. US.* The Mc Graww-Hill Companies

(Design Proposal Tekhnisi HP): Sriyanto.

Hulme, Agnes Kukulska. (2005). *Mobile Learning: A handbook for educators and trainers*. USA: Routledge.

Kemp, J. E., & Dayton, D. K. (1985). *Planning and Producing Instructional Media (4th Ed)*. New York: Harper and Row, Publisher Inc.

Nurudin. (2005). *Sistem Komunikasi Indonesia*. Jakarta: Rajawali Pers.

Sagala, Syaiful. (2007). *Konsep dan Makna Pembelajaran*. Bandung: Alfabeta.

Wijaya, Stevanus Wisnu. (2006). *Mobile Learning sebagai model pembelajaran bagi pemulihan pendidikan di daerah bencana alam gempa bumi Yogyakarta*. Yogyakarta: Universitas Sanatha Dharma.

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FINANCING FACTOR IN IMPLEMENTING INTERVENTION-BASED LEARNING, MOBILE LEARNING IN HIGHER EDUCATION

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Abstract

Along with the Development of Information and Communication Technology (ICT) is increasingly rapidly, the need for a concept and mechanism of teaching and learning (education)-based TI became inevitable. Currently, some of the devices produced in the form of portable technology so that everyone can make use of them. This device is used the user for everyday life in some way. Sophisticated devices like smart phones are very popular among community primarily because it can serve as a Wi-Fi and portable. Mobile Learning is a learning model that performed between places or the environment using a technology that is easy to carry on when the learners are on the mobile conditions. With a variety of potential and the advantages of the Mobile Learning can be expected to be alternative learning resources that can improve the efficiency and effectiveness of the processes and outcomes of learning students in Indonesia in the future. In the utilization of mobile learning, at the beginning of implementation, it requires no small amount of funding, especially in the making of the program. To create a mobile learning program required a minimum of 2.5 million rupiah funds. In addition, each faculty and students must have hand phone compatible for installed programs. For that it takes a good financing of education management. Financing of education consists of the cost of the investment, operating costs, and personal expenses. The cost of the investment units of education include the cost of the provision of infrastructure, human resource development, working capital and fixed.

Keywords: mobile learning, higher education, cost

INTRODUCTION

Along with the development of Information and Communication Technology (ICT) is growing rapidly, the need for a concept and mechanism of learning (education)-based IT becomes inevitable. The concept was then known as e-learning bring the influence of conventional education transformation process into digital form, both contents (contents) and the system. Evolution of the use of portable devices and wireless technologies has resulted in a radical change in lifestyle of modern man in economic and social fields. Currently, some devices are produced in the form of portable technology so everyone can use it. This device is used the user's everyday life in some way. Advanced devices such as smart phones are very popular among people because it can serve as Wi-Fi and portable. This function allows the user to communicate while on the move. This device has the ability that always increases so that mobile devices industry must constantly being innovative continuously introducing new features that may give them a competitive advantage. However, further development of digital technology used in social life and some people utilizing mobile learning as the core activities of pedagogy in higher education institutions.

Education is a human right, which happens to be a part of the responsibility of the State, as mandated by the constitution.

According to Ki Hajar Dewantara, education is an attempt to humanize humans humanely, with a slogan on *ing ngarsa sung tuladha*, *in madya mangun karso*, and *tut wuri handayani*. The purpose of education is universally based on the viability of social life, the political goals of a society, and the analysis of the actual social situation of contemporary, historical analysis of social institutions, the context of the community life (the social, cultural, political, and economic). Even the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as an international commission to study assert that:

"Nowhere is the universities' responsibility for the development of the society as a whole more acute than in developing countries, where research done in institutions of higher learning plays a pivot ale role in providing the basis for development programmers, policy formulation and the training of middle- and higher-level human resources"

College as a provider of higher education is still regarded as a source of knowledge, ethics, values and policies. However, state universities in Indonesia is still covered by a variety of problems as well as a problem of Indonesia relating to constitutional rights and responsibilities of the State in education. Besides the National Education Law mandates the organizer of the education unit in the form of education legal entity whose setting will be further regulated by law (Article 53 and Article 53 Explanation Education Law). The mandate contains an essence of autonomy/independence of higher education. It shows that the understanding of educational autonomy for universities implemented by managing the college in accordance with the needs, conditions of the area, and local wisdom. Educational autonomy implemented to regulate the rights and obligations of legal entities and college education (PTN/PTS) as an education provider (manager) who received a delegation of legal entities that shelter. The authority autonomy include organizing provider of higher education institutions and academic programs to produce quality education and to guarantee the quality of learning outcomes, competence, research, and community service in accordance with their capabilities and condition.

One form of the autonomy of higher education under the college is given the authority to manage the implementation of education. One carried out is by leveraging technology to higher education is the computer. In addition to a means for presenting information, the computer can be used in various fields including education. Utilization of the computer is not developed not only as a tool that is only used to assist administrative matters, but also it is possible to be used as an alternative in the choice of media, including performance learning of mathematics. One of them is based learning E- Learning. E-Learning is short for electronic learning. E-Learning is often defined as the process of learning to use a computer or the internet. It can add the use mobile learning into their teaching.

LITERATURE REVIEW

Definition of Mobile Learning

Mobile learning is defined by Clark Quinn [Quinn 2000] as: *The intersection of mobile computing and e-learning: accessible resources wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and*

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*performance-based assessment. E-Learning is independent of location in time or space***.** Based on these definitions, the mobile learning is a learning model that utilizes information and communication technology. On the concept of the learning mobile learning brings benefits of the availability of teaching materials that can be accessed at any time and visualization of interesting material. It is important to note that not every suitable teaching material utilize mobile learning.

The term mobile learning (m-Learning) refers to the use of the device/devices of information technology (IT) and mobile handheld, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning. Mobile Learning (m-Learning) is part of the electronic learning (e-Learning) so that, by itself, is also part of the distance learning (d-learning). Furthermore, Hussein & Cronje (2010: 12) states that: the emergence of revolutionary technologies has had a significant impact on educational technology. It has increased the potential of e-learning as a mode of delivery in education. By definition, mobile learning (or "m-learning") is learning by means of wireless technological devices that can be pocketed and utilized wherever the learner's device is able to receive unbroken transmission signals.

Some of the important capabilities that should be provided by the learning device m-Learning are their ability to connect to other equipment (especially computers), ability to present information learning and the ability to realize the bilateral communication between teachers and learners. M-Learning is a unique learning because learners can access learning materials, referrals and applications relating to learning, even when-and where-else. This will increase attention to the learning materials, making learning becomes persuasive, and motivating learners to lifelong learning (lifelong learning). In addition, compared to conventional learning, m-Learning allows for more opportunities for collaboration in ad hoc and informal interaction among learners.

Based learning Mobile Learning in Higher Education

Mobile Learning is a learning model that is made between the environments by using technology that is easy to carry when learners are in mobile conditions. With the potentials and advantages it has, Mobile Learning is expected to be a source of alternative learning that can improve the efficiency and effectiveness of the process and the learning outcomes of students in Indonesia in the future. Mobile learning program that is referred to in this article is based instructional media program cell phones/mobile/mobile and a unique learning because learners can access learning materials, referrals and applications relating to learning, even when-and where-else.

The application of mobile learning is very suitable for learning, but there is also a teaching material that is not suitable to adopt the concept of mobile learning include: materials that are "hands on" skills as a dentist, the art of music, especially writing songs, interview skills, team work like marketing and material requiring disclosure of expression such as dance. Considering the above, the application of mobile learning is better at higher education level. However, there is the need for variety of learning methods so that the learning process becomes conducive. As revealed by Kusumandari & Istyarini (2015: 32): a model of teaching and learning program of various activities that use a variety of methods (teaching models from a wide variety of programs and learning activities using varied methods).

The concept of the success of m-learning program in addition supported by information technology devices, as well as by planning, administration, management

and economics adequate. It should also be noted the role of facilitators, faculty, staff, means of implementation, through the adoption of new technologies, facilities, cost, and schedule activity (Natakusumah, 2002). In concept, lecturers m-learning should have the capability of understanding the material being presented, understand the strategy of m-learning is an effective, responsible on the subject matter, lesson preparation, creation of educational modules, the selection of supporting materials, delivery of the subject matter that is effective, the determination of student interaction, screening and evaluating assignments electronically. Studio teachers need to be better managed than in regular classrooms. Lecturers should be able to use the equipment, among others, using audio, video materials, and computer networks for the learning takes place.

Funding Based Learning Implementation Mobile Learning

Utilization of mobile devices changes many aspects of our lives, of how we work and communicate with how we learn. In fact, the advent of smart devices such as phones and tablets has fuelled mobile learning revolution. There is evidence that the mobile platform to support e-learning experience quality, revealed numerous benefits of mobile learning.

In the use of mobile learning, in early implementation, it requires big funds, mainly in the manufacturing program. To create a mobile learning program takes a minimum of 2.5 million rupiah funds. In addition, each faculty and students must have a compatible mobile phone to install the program. That requires good management of education financing. Educational expenses consist of investment costs, operating costs, and personnel costs. Educational unit investment costs include the costs of providing facilities and infrastructure, human resource development, and permanent capital. Personal costs include education costs incurred by learners to be able to follow the learning process on a regular and ongoing basis. National education funding is developed based on the applicable laws and regulations, the minister policies, programs and educational development goals, as well as the implementation of the program in the dimensions of space and time. Given the limited government budget for education, education financing strategy is drawn up in the priority scale.

Several Factors Intervene in Financing Activity-based learning, Mobile Learning on Civic with Indonesia, among others:

1. Curriculum Development Financing;
2. Financing the preparation of Lecture Modules;
3. The financing of the implementation of the Lecture;
4. Financing of Assessment and surveillance;
5. Financing Technology Instructor;
6. Financing of its administrative HR Learning/Mobile e-Learning;
7. Financing of Operational Activities;
8. Financing of Brand and Research Development.

Therefore, the eighth of this Financing is also a factor in one of the interventions to answer questions how learning activities using the eMU Learning can run well. Whether hardware, software and brainware, in Figure 1. Given the form of a chart, anything can be an intervention in learning, particularly in the field of financing in particular producers of financing factors.

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Figure 1: The cost factor in managing e-learning in the Consortium

Applying technology is not a simple problem such as turning the palm of the hand. Institutions are required to reform, to redirect the vision and mission in order to be able to take advantage of new technology wisely. In addition, there are also technical problems occurring concerning the working system of infrastructure and supporting facilities when not promptly detected and addressed will be able to affect the students in conducting learning activities.

Close

Education is now relatively conventional (face to face) face many limitations and are no longer able to meet the educational needs of the community are widespread and increasingly complex. With the rapid development of science and technology in the era of globalization, the more easiness can be accessed through computerization. Mobile Learning is a learning model that is made between the environments by using technology that is easy to carry when learners are in mobile conditions. With the potentials and advantages it has, Mobile Learning is expected to be a source of alternative learning that can improve the efficiency and effectiveness of the process and the learning outcomes of students in Indonesia in the future. In the use of mobile learning, in early implementation require big funds, mainly in the manufacturing program.

LITERATURE

El-Hussein, M. O. M., & Cronje, J. C. (2010). Defining Mobile learning in Higher Education Landscape. *Educational Technology & Society. Edisi 13.* (pp.12-21).

Jacques Delors, et al. (1998). *Learning: The Treasure Within, Report to UNESCO of The International Commission on Education for Twenty First Century*. Paris: UNESCO

Kusumandari, Rafika Bayu, Istyarini. (2015). Character Education Development Model-Based E-Learning and Multiple Intelegency in Childhood in Central Java. *Global Journal of Computer Science and Technology: Information and Technology. Vol. 15 Issue 3. Version 1.0 Year 2015* (pp.24-34).

Nasution, Zulkarnain. (2011). *"Apa itu "Otonomi" Perguruan Tinggi?"*. Retrieved from http://berkarya.um.ac.id/?p=2126.

Natakusumah, E. K. (2002). Multimedia sebagai sarana pembelajaran; Lokakayra Multimedia sebagai sarana pembelajaran metode learning based; DUE-Like TPB ITB, 13 Nopember 2002.

Natakusumah, E. K. (2002). Teknologi informasi pada pendidikan jarak jauh, Orasi Ilmiah pada Wisuda STMIK Bandung, 12 Januari 2002, Grand Aquila Hotel, Nusantara Ball Room, Bandung.

Rohman, Arif, and Teguh Wiyono. (2010). *Education Policy in Decentralization Era*. Yogyakarta: Pustaka Pelajar.

Saksono, Ign. Gatut. (2008). *Pendidikan yang Memerdekakan Siswa*. Yogyakarta: Rumah Belajar Yabinkas.

Tilaar, H. A. R. (2009). *Wawasan Kebangsaan, Globalisasi, dan Taman Siswa, dalam buku Serpih-serpih Pandangan Ki Hajar Dewantara*. Yogyakarta: Universitas Sarjanawiyata Tamansiswa and Kepel Press.

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MOBILE LEARNING IN PERSPECTIVE OF THE MULTI-FUNCTION APPROACH

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Abstract

Mobile Learning (M-Learning) is a method which is integrated with the mobile device and a wireless technology processing with learning system, aimed to enhance the learning effectiveness. The existence of wireless technology and mobile device has enhanced the development of learning system, from the traditional or conventional learning system into the mobile learning system. The hypothesis of the research is, the scepticisms upon the new technology occurred to most teachers who do not have the mobile/cellular phone. This is an exploratory research. The research uses the non-experimental, systematic observation and descriptive method. One of the objectives of the research is to investigate the motives of individuals who are involved in this research in using the mobile phone. The difference can be observed among the designated groups; 2 groups of students with minor difference who use their mobile phone for entertainment purpose (76 – 88%) and half of teachers who have the installed application and use their mobile phone for the similar purpose. Yet, if the mobile phone is used as means of communication, we can conclude that 100% of teachers use their phone for communication. On the other hand, only 75% of the students of youngest age activate their mobile phone as means of disseminating information. From the research, it can be concluded that the use of mobile communication gradually set its distinctive place in world of education, not only across the globe but also in Indonesia. On contrary with the current trend in mobile communication, some schools and universities stated that teachers should apply the modern teaching methodology without omitting the conventional teaching methodology. In facing the different attitude upon this question, the education policy can be well defined with a set of regulations and recommendation of the proper use of new technology in education.

Keywords: learning, Mobile Learning, multi-function

INTRODUCTION

Cellular phone technology has existed for almost four decades. In the late 90's, smartphone has been adopted massively starting from Japan and so forth across the globe. Last decade has shown the exponential increase of the diffusion and functions of the smartphone. Globally, there have been more than 6.8 billion cellular phone users and 70% of them are at the LMICs. For example, 65 % people in Africa – Sub Sahara have the cell phone application whereas people in Kenya have 75 % of the cell phone application. Currently, more than half of people in Kenya choose to buy the smartphone. The use of information technology and communication in education world is continuously progressing into its varied strategy and pattern. Basically, it can be grouped into the E-learning system as a form of learning which uses electronic device and digital media, as well as the M-learning as a learning system which specifically uses the mobile device and mobile communication

technology. An increasing level of mobile device development, a relatively easy-to-use system and affordable price of the device compared to the personal computer device, somehow have become the motivating factors of the widely use of mobile learning as a new learning approach, shaping the learning paradigm which can be done anywhere at any time.

Mobile Learning can be defined as education provisions and training for the mobile devices, such as the Personal Assistant Digital (PDA), smartphone and mobile phone. In defining the mobile learning, it is necessary to refer to the function and mobility. There is the continuum from the perspectives of function towards the devices used for e-Learning and M-learning.

Learning by using the mobile/cellular phone, which is also known as M-learning, has made it easier to identify the popular way of transmitting information as well as developing the learning process for different aspects. Previously, we can only access limited data from the desktop or designated module. However, students nowadays are able to access information from the mobile device easily, such as laptop, tablet, smartphone and telephone. In 2016, there will be more 2.1 billion of mobile devices which uses HTML 5 web browser – an increasing number from 109 million in 2010.[3]

M-learning is a mobile application which focuses on learning activities and takes advantages of the mobility as well as wireless technology in learning process.

The fast Internet technology currently enhances the learning system wholly. This enables high level of interaction between students and teachers in separate geographic area. Thus, Internet is not merely technology for information dissemination, but also it has the capability to create learning environment which can fulfil the needs and requirements of the modern learning system for it encourages students to participate in various activities such as discussion, collaboration and problem solving. The efficient Internet technology has enabled the distant learning process which uses the e-learning system to set up its place. It is highly expected that M-learning effectively participated in promoting the next generation of distant learning. Furthermore, M-learning refers to the creation and consumption of learning content by the students through their use of mobile device. In other words, the e-learning concept is used through the mobile device. Thus, we can say that the M-learning is related to the flexible learning concept in which the computation, communication and the device censor system is installed and is being integrated deeply into students' daily life.[4]

The method of learning as a task demands the students to be able to adjust with certain condition and eventually place the attained information into its timeline. Students can attain the information by pointing the chapter in textbook (or websites, if it is needed). In order to be able to accomplish the tasks, students need to refer to their textbook (and websites) so as to get the

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guidelines before they copy the information to memory. Afterwards, students can exchange information about their findings during aural presentations in class discussions.[5]

On the other hand, laptop and even the desktop computer will continuously update which the mobile technology become centralized and emerged as the focus of current computation technology. The Google CEO, Eric Schmidt has stated that their policy 'first is mobile' which means the target of their development is the mobile with its devices. As we know that each country possesses the possibility of using the mobile device as its first line of the developing internet connectivity, whereas some cellular networks are designated and none for the IP. This is very obvious that 'traditional' computer from line-up netbook cell phone and innovative laptop become the supports for the additional fixation. Some have also predicted that we will see the gradual phasing out from netbook, which is applied by the laptop instantly and simply known today "as device cell phone or device pad". For the next two year, we are surely seeing the diversity as well as defending the innovation from mobile technology disruption.[6]

We can experience the advantages of using the latest cellular phone technology for education nowadays despites its technology still continues to progress especially for the developed countries which implements the cell phone technology in world of education. Some countries initiate to implement the use of tablet and smartphone for their citizens in studying and connecting worldwide. In UAE, tablet technology is implanted by students in their learning process. Furthermore, Qatar also implements this technology for leadership decision making as well as to gain knowledge in their workplace.

A research by Qatar Foundation is conducting the investigation used the mobile knowledge to train their employees as well as UK is applied this technology for their oil and gas industry. Not only that, some other countries such as South Korea, Brazil, Thailand and India also initiate the implementation of this technology. They even become more advanced for resource knowledge digitalization trend as the substitution of text books, manuals in attempt of accessing knowledge and information through cell phone or mobile technology. For example, South Korea is planning to digitalize the K-12 curriculum into the tablet. Students will use their tablet as electronic source at school substituting the necessity of bring the loads of textbooks. South Korea as well as other countries has realized the economic values of using of mobile technology as a means of educating their citizens to be interconnected worldwide through the internet and the use of the mobile technology. However, this kind of research is needed to determine the impact of mobile technology towards education world and how the mobile technology is followed in conducting the learning process. The notes provide the attempt of using this mobile technology approach and mobile learning in conducting the research, the outlines of advantages, challenges, appropriate timing to

conduct the mobile knowledge as well as how to solve these challenges.[1] The fact that technology develops very fast, we are facing the challenge that any kinds of innovations based on technology use can easily become obsolete instantly too. Some industrial analysts have predicted the 'death' of netbook use. The idea is that there must be curricular initiatives to navigate this device carefully. This is important for the work based in standardized file format to ensure the maximum longevity of the application, file and other developed resources for teaching and learning activities.

Current mobile communication has become the reality of each student from now on and even for their future. In other words, mobile communication has become common learning tools such as video, computer as well as the Internet. The capacity of contemporary cell phone has no sufficient capacity in computer processing, in a way people are likely to use the pocket tools which can give many access to different information resources and data around the world. Consequently, this new innovation is very beneficial and creates greater potential which can be exploited for educational interest.

Cellular phone as the educational tool has got its penalties prejudice and resistance penalties from the community around the world including Serbia. Furthermore, the educators and Ministry of Education think that this innovative technology has been put into old method of solution as one of the alternatives. However, in different perspective, this kind of possibility should be put into consideration as there has been no history that the technology progression is only available for common people who use it as mobile communication.

In accordance with the definition, it can be concluded that mobile learning is a learning model which uses the information and communication technology. With this learning concept, it can be stated that mobile learning brings up the benefits of learning material availability at any time along with the attractive material availability. The term M-learning or so called Mobile Learning refers to the use of handheld devices such as PDA, cell phone, laptop and information technology devices which will be used for teaching-learning activities focusing on the use of hand phone. The objective of the development of mobile learning is to create long life learning process which students can be more proactive during the learning process. This method can also save time as students are necessarily to be present in class when they have to submit the assignment. Students only need to submit their assignment through the application of their mobile phone. Thus, this method indirectly has enhanced the quality of the learning process itself.

METHOD

Besides analyzing the international research database as to support this article, the main purpose of this article is to conduct the opinion polling among students and teaching faculties in accordance with mobile

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communication in schools. This article is trying to find answer of the question: How long does each student spend for cell phone and what is the purpose of using the cell phone? Using the study approach, the research uses 9 cities as study samples. This is an exploratory research, thus using questionnaire as the technique of gathering information. Questionnaire method requires the participant to fill in the online questionnaire online sheet about smart phone, particularly if the students and teachers have the smart phones and their opinion about their potential, the used application and the purpose of using the smart phone. The answers were compiled and automatically registered into the database. We spread the questionnaires to the Facebook groups and ask help from primary school and secondary teaching faculties to gather data from their students. Our hypothesis is that teacher feels sceptical about this new technology particularly for those who do not have cellular phone. The research is conducted with non-experimental, systematic observation and descriptive methodology.

RESULT (RESEARCH FINDINGS)

The first question mentions about the number of students and teachers who have the smartphone and the possibility to be placed in M-learning environment. We conclude that 71,81 % of students (Table 1, Chart 1) and 45,83 % of teachers are using smart phone (Table 2, Chart 2). On one side, the observation found out that the observed student with same age and same gender, shows that the insignificant differences. It is observed that 72,73 % of male teachers have cell phone and adaptive to the new technology whereas only 37,84 % of female teachers have cell phone and adaptive to the technology.

Table 1: The possession of cell phone among students according to the age and gender

Altogether	Female	Male	11-14 Years	15- 18 Years
71.8 %	53.40 %	47.22 %	68.22 %	73.46 %

Table 2: The possession of cell phone among teachers according to the gender

Altogether	Female	Male
45.83 %	37.84 %	72.73 %

Table 3: Cell phone utility

11-14 Years	15-18 Years	Teachers	
76.14 %	88.24 %	50.00 %	Entertainment
75.00 %	92.44 %	100.00 %	Build communication
35.23 %	48.32 %	45.45 %	Learning and working

Table 4: Does student use cell phone? (Students' answers)

Yes	No	Altogether
173	153	" % "
53.07 %	46.93 %	
25.00 %	65.91 %	11-14
63.45 %	22.27 %	15-18

Table 5: Do you allow students to use cell phone? (Teachers' answers)

Yes	No
27.08 %	72.92 %

One of the objectives of this research is to find out the motivation of people involved in this research in using smart phone (Table 3, Chart 3). The difference can be observed among these groups; small difference for 2 groups of students who use smart phone for entertainment purpose (76-88%) whereas only limited teacher use the installed application for the similar purpose. However, if we use cell phone as means of communication we can conclude that 100 % of teachers use the cell phone, whereas only 75% of the youngest students use their cell phone to disseminate information. The difference probably occurs due to different interpretation among user: young generation uses Facebook, Skype, etc as means to communicate, for financial reasons, their teacher are connected to the cellphone data communication network with the same purpose. It can be shown that generation with the age between 15–18 secondary school students use their cell phone to work and study.

Among the supporting research conducted, it is known that schools in Serbia prohibit the cell phone despite the students would like to know more about things explained by teachers so that they can answer the questions. In spite of the fact that the question "Do students use their smart phone even though they are prohibited to use?" is answered with YES, that 53% - 63,45% of the students aged 15–18 have their cell phones.

These numbers become attractive when we compare the results with 27% of teachers who support the use of smart phones in their teaching.

Table 5: Do you allow the use of cell phone? (Teachers answers)

Yes	No
27.08 %	72.92 %

From the findings, the explained percentage can be illustrated below:

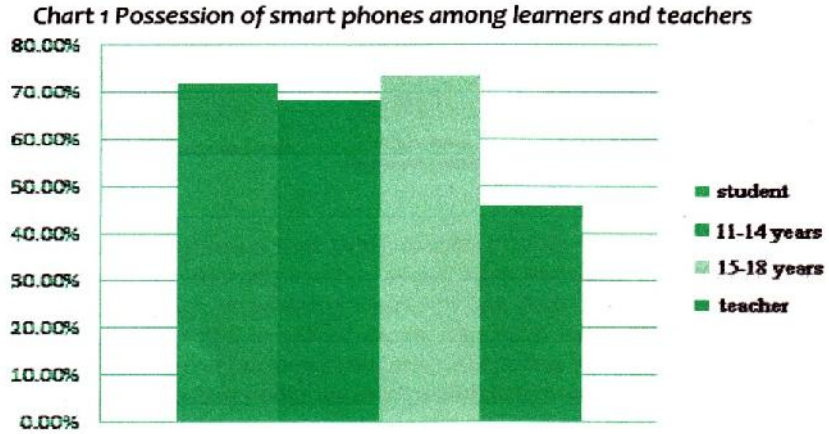

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Chart 2 What is smart phone used for?

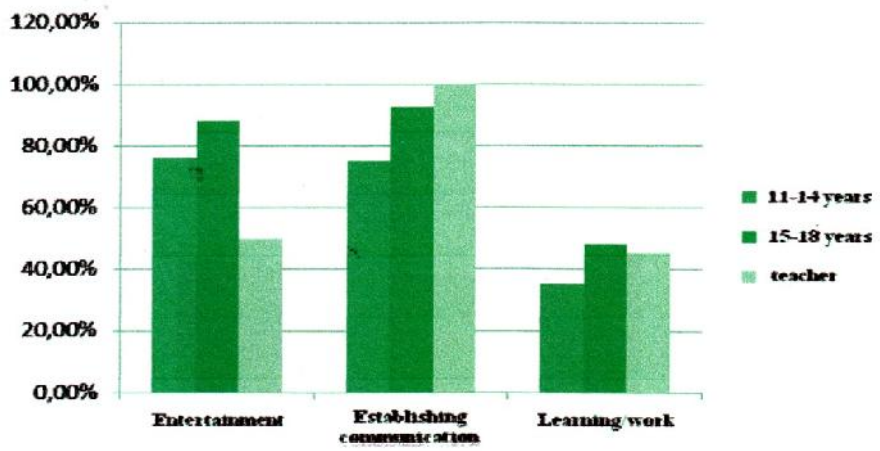


Chart 3. The application of mobile phones during lessons

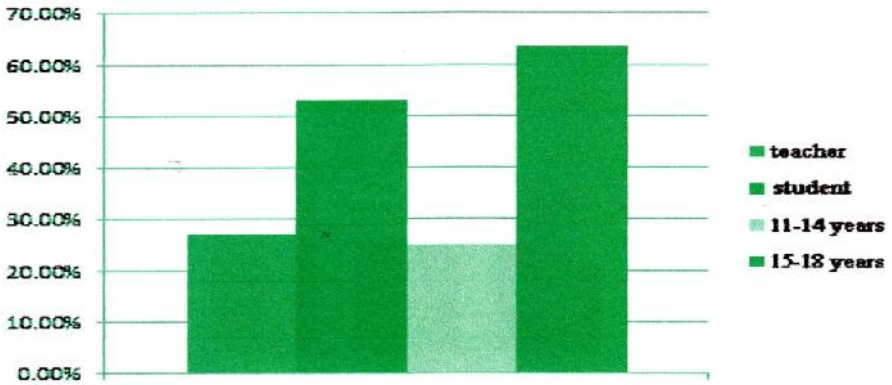


Chart 4 The use of mobile phones in the school and during lessons

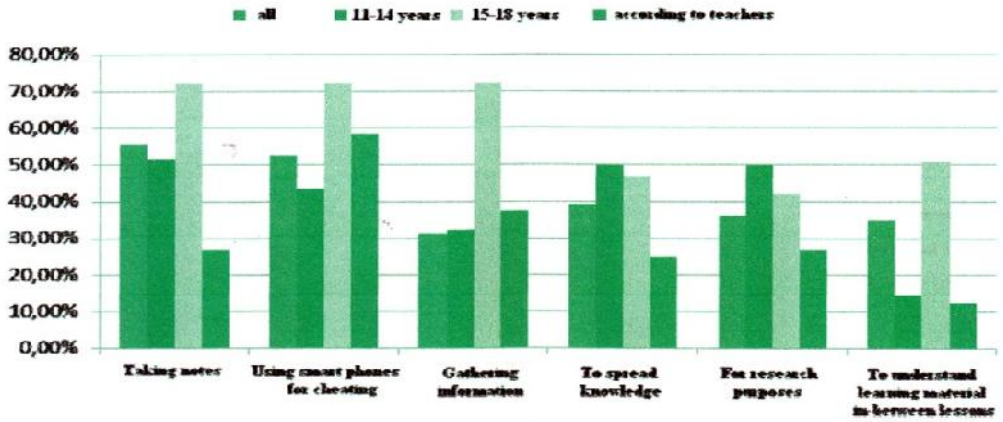
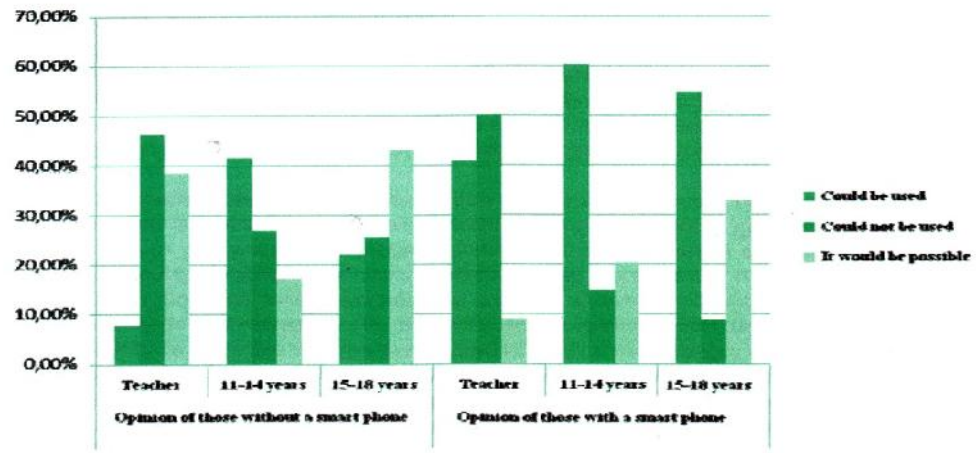


Chart 5. Would it be worth using smart phones during lessons?



However, having the technology of cellular phones by students and teachers does not guarantee that they only access education information, but also it has multi-function as entertainment and work support.

Thus, the way of using cell phone as means of learning with knowledge design as well as the way they can access materials and information from this means of technology is continuously developing. Ideally, the development needs to be followed continuously so as to attain the globally knowledge which enables teachers to understand the exact principles of learning in their attempts of designing the learning that suits their culture. This aims for the students to be skilful in using the cell phone as means of precise learning.

DISCUSSION AND CONCLUSION

This article shows that gradually mobile communication has got its special place in the world of education, not only across the globe but also in our country, Indonesia. On contrary with the current trend in mobile communication, some schools and universities stated that teachers should apply the modern teaching methodology without omitting the conventional teaching methodology. In facing the different attitude upon this question, the education policy can be well defined with a set of regulations and recommendation of the proper use of new technology in education.

For certain level, there has been different opinion occurs between students and teachers which creates unique reaction upon this innovative technology. For examples, an introduction/exposure to computer, projector or internet connectivity at school which are needed nowadays. Surely, this means of technology which supports the learning process such as mobile learning depends mostly on financial and psychological aspects. Even though teachers

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do not really recognize the hidden potentials of this tools and the probability of managing lessons which maintain the learning functions, thus help in deciding, organizing, facilitating the autonomy and motivated environment.

Educators neglect the alternated pedagogy which has direct consequences from those who did not realize didactic methodology and possibility of the advanced technology. Aside from these facts, we have to conclude that cellular phones have taken its special place for those who involves in world of education, not only in across the globe but also in our country Indonesia. This is supported by the research findings of: the illiterate women in Pakistan learn how to write and read using the cellular phones whereas in East America, the sample of the local ecosystem help students to understand the complex phenomena using the M-learning during the trip.

Mobile technology has different impact to community in a way it will determine the future with the support of knowledge from mobile learning so as to shape the generation such as students. However, it needs full potential to motivate student upon using the advanced technology to attain new knowledge. By accessing information at any time at any places, it creates urgency in education which needs challenges within unlimited time. Therefore, special technology such as mobile learning has multi-function to disseminate education from variety of needs. Thus, we need to implement this method as early as possible fitted with the school needs and get the precisely target in achieving information from particular learning process.

Mobile Learning will change the way people work or accomplish their task based on different rules. To change the work methods, learning or socialize even for business really need the information attained from mobile network.

Web era juxtaposes us with the mobile future. It somehow depicts education is specifically made into systematic networking which can serve any time at any place with supportive technology networking. The information used by students through the cyberspace disseminates specific material knowledge by the location – based on the strong networking. Knowledge will become more complete and systematic that allows students to study in context and enhance higher thinking skills and competitive rate in studying. The ability to access information and knowledge across the globe at very flexible time means we make use of the technology. A technology which makes it easy for students to access variety of knowledge.

REFERENCES

Desmond Keegan, MOBILE LEARNING:A PRACTICAL GUIDE, 2012.

Mohamed Ally, Mobile learning: from research to practice to Impact Education,Canada, 2013.

Mohammed Sarrab, An empirical study on cloud computing requirements for better mobile learning services, Int. J. Mobile Learning and Organisation, Vol. 9, No. 1, 2015.

Malcolm Brown, Mobile Learning: Context and Prospects A Report on the ELI Focus Session, 2010.

Moses Muia Masika, Use of Mobile learning technology among final year medical student in kenya, Pan African Medical Journal, 2015.

Nick Floro, Mobile learning (Tips, Tools, and Intelligence for Trainers), 2011.

Kőrösi, Esztelecki: IMPLEMENTATION OF MOBILE PHONES IN EDUCATION, 2015.

Laurent Cammarata and Diane J. Tedick, Content-Based Language Teaching with Technology, 2010.

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ELECTRONIC & MOBILE LEARNING EVALUATION

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EVALUATION OF E-LEARNING MULTIMEDIA

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Abstract

This paper purpose is to discover shortcomings of EL multimedia product (as a formative evaluation) and to conduct a survey to users of EL multimedia (as a summative evaluation). EL is an online e-learning multimedia for students of Sekolah Tinggi Manajemen Informatika dan Komputer (STMIK) Bumigora Mataram, which is able the students to chat, to upload task file, and to download learning material. EL system is based on restful web-service that can provide distant learning. According to formative and summative evaluations, Donald Kickpatrick identified four levels of evaluation those are reaction, knowledge/learning, performance/behavior and impact/result. Stufflebeam introduces Context, Input, Process, Product (CIPP) evaluations. The formative evaluations result show: the EL multimedia disadvantages are: not supports interactive face to face learning, not facilitates audio communication, not be fully user friendly, could not upload graphic and image files, only supports android operating system for mobile system, not be provided by feedback facility of test result and also not have help menus. The summative evaluation result found that the EL Multimedia: supports independent learning, provides web-client application, improves interest/reaction of student to learn, increases student knowledge comprehension, increases learning behavior, and gives good learning result. Statistical comparison tests found: there are significant differences influence the implementation of e-learning EL between Strata-1 (S1) and Diploma-3 (D3) students. And there is no difference in terms of the level of reaction, learning and behavior towards the use of e-learning EL of students.

Keywords: EL, Multimedia, Instructional, Online, E-learning, Evaluation

INTRODUCTION

Multimedia products generated are not always perfect, therefore the evaluation is needed in testing and distribution phases of multimedia (Sutopo, 2012). Evaluation of educational multimedia useful to correct any multimedia design stage that has been done.

This multimedia evaluation carried out two evaluation stages, namely: (1) to discover the shortcomings of multimedia products EL (as a formative evaluation) and; (2) to conduct a questionnaire (survey) to users (leaner/user) multimedia EL, namely learners or students (as a summative evaluation).

The significant to be gained from the evaluation of multimedia are:

- Enhance Multimedia Products.
  The use of multimedia learning needs to be an evaluation to determine whether the targeted goals achieved through learning multimedia.
- Determining the Effectiveness of Instructional Materials.
  This evaluation is instrumental to determine the suitability of multimedia products with the goal and instructional materials that have been predetermined.

LITERATURE REVIEW

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EL e-learning multimedia is created for online learning media for student of STMIK Bumigora Mataram as learning facilitating like chatting, learning material sharing, and learning duties uploading. EL is as closed system, this means, users must be members of EL or users is limited for registered students and lecturers.

EL supports interactive between lecturers and students in lecturing task and in learning materials. EL system architecture is multi-platform based on REST full web service. REST is one of web service type which it implements transfer concept between states. The state can be described as follow: if browser requests a webpage, then server is going to send recently webpage to browser (Tidwell, 2001). Rest full web service includes two parts those are API web service and Web-Client. API Web-service will handle feature and performance problems and Web-client builds distant interaction between user and computer.

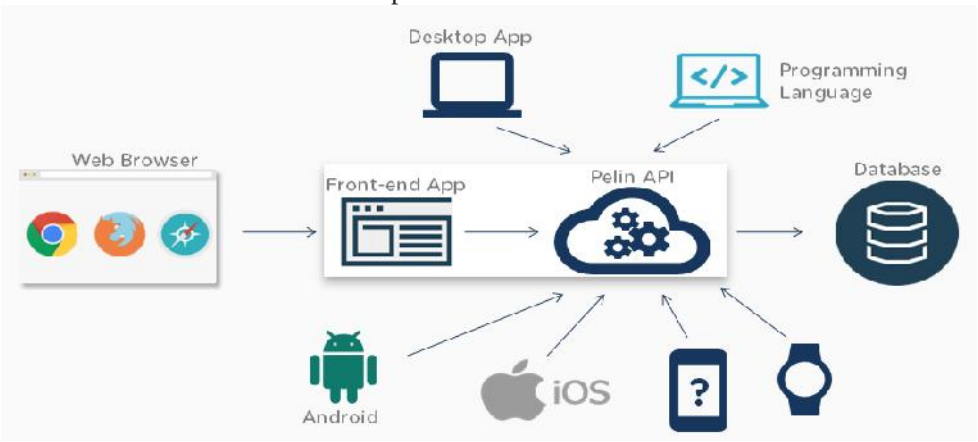

Figure 1: EL Architecture System

EL system applications implementing REST architecture, which will form a layer API on the system, so that other platforms will access the database through the API (Figure 1).

There are 6 phases (levels) in multimedia design: concept, design, material collecting, assembly, testing, and distribution (Figure 2). Distribution phase constitutes evaluation of multimedia product (Luther, 1996).

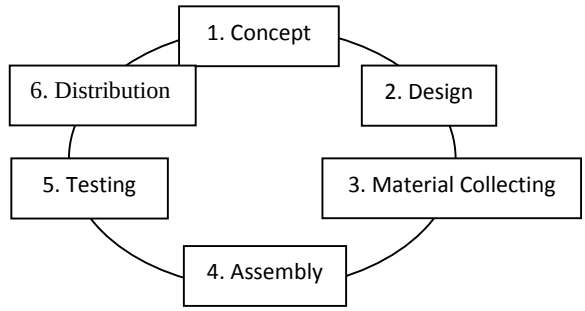

Figure 2: Phases in Design of Learning Multimedia (Luther, 1998)

Referring to Lee & Owens (2004) opinion, process of learning multimedia design involves phases need assessment and front end analysis, design, development, implementation and evaluation (Figure 3). Obviously, evaluation denotes one of phase in multimedia design that is the phase after implementation /testing phase.

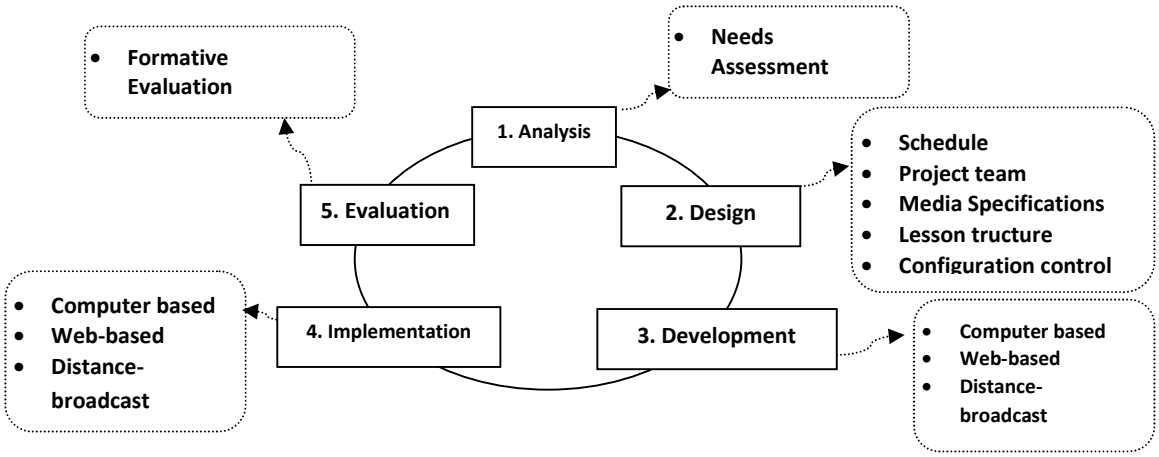

Figure 3: Phase in Making of Learning Multimedia (Lee & Owens, 2004)

Furthermore, according to Lee & Owens (2004), Mulyanta & Leong (2009) and Suparman (2014), evaluation of learning multimedia consists of formative and summative evaluations. The formative evaluation is evaluation to get quality feedback (about weaknesses) of multimedia product in effort to increase quality of learning multimedia program, while the summative evaluation is for measuring the effectively of implementation result of learning multimedia product (Lee & Owens, 2004; Mulyanta & Leong, 2009; Suparman, 2014). Donald Kirkpatrick (in Lee & Owens, 2004; Kirkpatrick & Kirkpatrick, 2006) identifies 4 levels of evaluations namely reaction, learning (knowledge), behavior (performance) and result (impact). Reaction measures interest and reaction, learning (knowledge) measures comprehension level, behavior measures/knows participants attitude about what had be done, and result (impact) looks performance/quality result or effect. Stufflebeam in Suparman (2014) introduced evaluation model CIPP (Context, Input, Process, and Product). Context evaluation is evaluation about necessary and problem of learning, purpose and implementation of learning. Input evaluation is the evaluation of

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methods/approaches which is used in the lesson plans related to cost effectiveness. Process evaluation is an evaluation of a program or learning systems, and product evaluation is the evaluation of side effects, both positive and negative outcomes of learning activities.

DISCUSSION

Formative evaluation in getting quality feedback (about the weaknesses) of multimedia product was conducted to learning multimedia based on theory of multimedia namely a source of reference books, and journals.

Summative evaluation involved: (1) Evaluation of effectiveness of the implementation of learning products or implementation activities instructional/learning multimedia (Lee & Owens, 2004; Mulyanta & Leong, 2009; Suparman, 2014); (2) Evaluation Kirkpatrick: reactions, learning, behavior and result of users (Kirkpatrick & Kirkpatrick, 2006); and (3) Evaluation of CIPP Stufflebeam Context which is an evaluation of needs and learning problems.

Summative evaluation was conducted by survey. The measurement scale used in the survey is the Guttmann scale and rating scale, so that measurement data are categorical data and interval. The list of questionnaire is included in Appendix 1. Respondents in this study are the users (learners) multimedia EL. The survey was conducted in June 2016, and analysis of data from a descriptive study carried out with the help of statistical program SPSS. Through testing skewness, kurtosis and Shapiro-Wilk known research data were normal distributed.

With the number of students was 325 student respondents, the number of student population Diploma-3 (D3) and Strata-1 (S1) Computer Information Engineering 4th semester of the academic year 1986/87, the survey has been done.

Formative Evaluation

Application of multimedia EL is shown in the following Figure 4: There are two actors, namely the lecturers and students who have different access rights. To be able to access the application, lecturers and students have to login. Once logged in, Lecturers can perform messaging, discussion, uploading material, uploading assignments and downloading task answer. Once logged in, students can perform messaging, discussion, downloading material and uploading task answer.

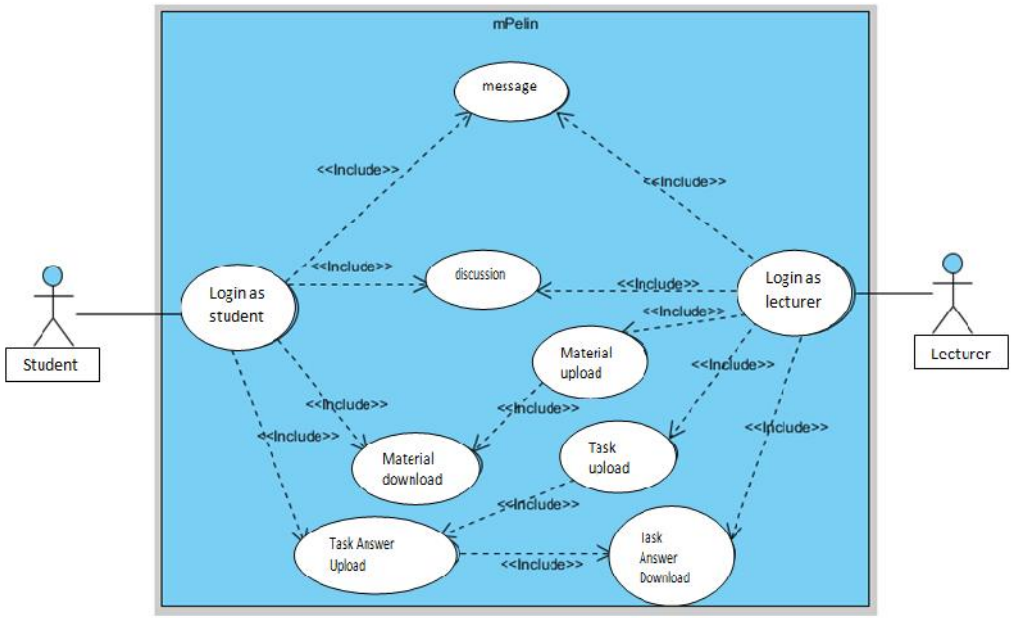

Figure 4: Diagram of application functionality EL

According to Simonson, et al., (2012), the scenario of distance learning is that: classroom for the future will be achieved through technology and will continue to have teachers who are responsible for learning events that occurs; learning is learner centered; The computer network allows learners to access events of learning to meet individual needs; interactive learning is possible because communications technology allows the learner to contact the database, resources, instructional specialists, and other students in real-time (live); and also all classes can be interactive participation face sessions (video) with a teachers from remote sites or with groups of students from other schools.

The advantage of multimedia EL is supporting future learning class which is achieved through technology, network communications web-browser as shown in Figure 1, learner-centered and interactive learning that enables learners to access the database/resources on the server, and send and receive text messages/video/image between learners and teachers.

Disadvantages multimedia EL was not able to do interactive audio and/or video conferencing or face to face learning between learners and instructor in real time or it can not be face to face communication in real time individual learner or a class with group learners in the class/other schools. In this case, multimedia EL only facilitate independent learning (self/independent learning), and indirect communication namely through text messaging and video recordings.

Multimedia learning should not only facilitates independent learning, but also facilitates the real time face to face learning, due to: 1. teleconference concept was popular, where teleconference is a short lecture with specific topics (Simonson, et al., 2012); 2. E-learning can be accessed in real time and at any time (flex-time), therefore it is needed interactive features, such as video conferencing and electronic white boards (Wagner, 2008); 3. the electronic learning (eLearning) is often combined with face to face learning, known as combination/blended or hybrid

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instruction (Smaldino, et al., 2008). However, learning activities not only shaped into face to face but can be self-learning, and a combination of self-learning and face-to-face (Supaman, 2014).

Multimedia is composed of components: text, audio, visual (images, photos, graphics) and video (Smaldino, et al., 2008). Usually audio is an integral part with the video. Audio can be used together with graphics, text or a combination of both (England & Finney, 1999). Another disadvantage of EL is not equipped with audio facilities as a medium of communication students and lecturers or students with students, while Smaldino, et al., (2008), emphasizing the advantages to be gained in incorporating multimedia audio, namely: cost effectiveness (remote communication (teleconference) audio regarded as a way to save costs in a meeting, or a training instructor without the issuance of travel expenses); easy to use (relatively easy to communicate because it uses the facilities voice/phone), and interactive (all members get the same message and can interact, they can talk to the instructor or other students).

Furthermore Smaldino, et al., (2008) confirmed that the learners with limited proficiency in reading skills can be learned through the media of audio, so it would be nice if the learner can learn the material audio, visual, and text. Because, according DePorter (1999), there are three types of learning of learners: visual, auditory and kinaesthetic. Learners type of visual learning easily understand the material, if the media used is visual media (e.g. video), whereas learners with auditory learning type will respond well audio media learning.

Therefore necessary to develop the EL by adding features into face to face real time that is equipped with audio facilities, teleconferencing and electronic whiteboard.

According to Reiser and Dempsey (2012), the success of a project or process is measured through its activities: the number of people involved, the cost, and a long turnaround time, but now that sense has shifts that value depends on the results of activity compared to activity, more often defined as the value of the benefit (of the spending money) compared to the costs. So associated with the formative evaluation and the evaluation of product CIPP: is a multimedia EL provide benefits for students not only to access the records of teaching materials in class online (or process-based learning electronic e-learning), to communicate the message text and video film as it is known in Facebook, Twitter, e-mail, and Youtube, but also as a product of learning innovation is built with PHP programming language and SQL database, media access to the internet, gadget mobile phones and stand-alone machine, to meet the needs of the campus STMIK Bumigora, as a medium of learning and communication for lecturers and students. Schwier & Misanchuk (1987) said: making a multimedia product with programming languages require high skills when compared to the authoring tool that is relatively easy. It is also part of the excess EL multimedia programs. But behind these advantages, EL has shortcomings including: EL even though accessible to all devices via a web-browser, but only supports mobile multimedia (mobile phone/tablet) with the android operating system, when a mobile phones/tablets besides use the android operating system, many of which use the IOS operating system, QNX, and windows. Novisemood (2012) warns that computers, mobile phones and tablets require software operating system to regulate the work of the hardware. Actually, there are several kinds of operating systems are widely used

in mobile phones/tablet: 1. Android is an operating system that is open (open source) from Google, 2. IOS: the operating system issued Apple used on Apple computers and mobile phone/iPad tablet, 3. Windows: the operating system released by Microsoft that is only used on computers, also used on mobile phones, and 4. QNX: the operating system used on mobile phones Blackberry.

Associated file types of learning tasks, shortages of EL are:

- variations in the type of files to tasks learners, which can be uploaded (document files) is limited to file doc, docx, pdf, ODF, Zip, Rar and 7Zip, when the file type of document that is often used in addition to the file types, are also file wri, txt, and ppt (source: http://id.downloadastro.com/File%20Windows/File%20Text/). Wri is a window write file. Txt is an ASCII file or a plain text or in computer terms, is a type of computer files in the form of unformatted text, and .ppt file is a Microsoft Power Point documents, source: https://ianspace.wordpress.com/2011/02/22/types-% E2% 80% 93-types-file-document/.
- EL not support tasks with image files like JPEG/JPG, Gif, Png, Bmp and Tiff and graphic files: rod, pictorial, pie, and line.
- There is a limitation of the capacity of the uploaded file (i.e. a maximum of only 5 MB), whereas often files that included images and video even already compressed (Zip, 7Zip and RAR), often still large capacity (over 5 MB).

Known that various types of image files: JPEG/JPG, Gif, Png, Bmp and Tiff. This type of image files of different sizes and capacities need to be considered when used in the article (Kuncara, 2016). According Smaldino, et al., (2008), sometimes, learners use pictures and graphics to present the task/job. Known for a variety of graph types are: a bar graph, pictorial graphs, pie charts, and line graphs.

According DePorter (2009), any individual who has a visual dominant type, it will be easier to understand the material that looks visually like media graphics, images and video, audio and media than practice. Furthermore Given & DePorter (1992) said, in doing something, even though has a plan, but sometimes in implementation depends on the situation, hence should not be rigid (should be flexibility) and continue to do always the same way. Flexibility is a response to how to change the situation to make something good for us.

Evaluation stressing: bearing in mind the media graphics and images are visual media that can be operated by almost everyone (Smaldino, et al., 2008), which presents the facts, and ideas in addition to text and words, especially graphics media prioritizes the senses visionaries (visual), then it should be considered to complement the multimedia facilities to upload images and graphics, including student assignments page and lecturers material page.

There should be flexibility in upload file size by students, so it does not become a problem when uploading.

On page which is used by lecturers to download answers of student tasks that have been collected by student. Evaluation on the design of this page is no features to provide feedback values and duties collected by the students from lecturers. Yet according Filbeck (1974) in Suparman (2014), the implications of the first principle in the design of learning is necessary to provide positive feedback or praise immediately on the success or the correct response of learners by a teacher. And also

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according Gleder (2011) response to feedback should be given to generate reinforcement. Moreover, Munthe (2015) revealed in his research, that the need for evaluation to determine the extent to which the success of the learning program.

Name of the file downloaded by the lecturer should be generated automatically by the system by adding the name of the student, to facilitate faculty in identifying ownership of the task. Due to one of the benefits that should be owned by the e-leaning multimedia is fun and flexible (Kamsin, 2005).

If desired EL also be used by the learner as a self-learning, it is necessary to add features quizzes and answer keys, and can be generated automatically by the system by adding the name of the student whose files downloaded by lecturers, to facilitate faculty in identifying ownership of the task.

The design EL interface needs to equip the entire icon interface on each page (windows) screen with a label/text/description on each icon, and also need to be added to the icon (selection menu/function) to print, save to storage media, and the media other interfaces as needed stakeholders (universities) and users (students and lecturers).

Other deficiencies that exist both in the multimedia EL web-client and mobile is the absence of “help" that may be required by the user or user if you want to know what can be found in learning multimedia program; how to use the menu on each page of the menu, any information that could be obtained from each menu page, and other assistance. According to the England & Finney (1999), the availability of "help" at any time or when the user needs it is an aspect that should be on every interface program, for example: 1. How do users select options, what to do, 2. How user know that it has successfully select, for example by making the sound as a sign that it has successfully select icons/option or button/knob. However, according to England & Finney (1999), the purpose of the interface is made smooth interaction that meets the necessary criteria in terms of quality. In this case, the level of competence and understanding of user needs into consideration in designing the interface. Each interactive interface aims to trigger the interpretation of the message embedded (contents) in the icon (England & Finney).

Sumative Evaluation

From the results of the survey obtained descriptive research results: the level of reaction (interest and reaction) users/learners to the e-learning EL reached 63.29% of the ideal, the level of learning (knowledge) users against e-learning EL 74.63% of the ideal, level behavior (performance) users of e-learning EL 74.09% of the ideal, the result (impact) level users of e-learning EL 70.91% of the ideal and the e-learning influences/benefits for students EL users reached 70.73% of the ideal. Meaning it can be concluded that the e-learning EL is a multimedia that provides benefits, interest or positive reaction, understanding, changes in behavior/attitude and influence learning a satisfactory result for students STMIK Bumigora Mataram.

Comparison test between student opinion D3 and S1 was found that:

- Among students of Information Engineering S1 and D3 are significant differences effect/benefit of the use of e-learning EL.
- Among students of Information Engineering S1 and D3 there are no different levels of reaction to the e-learning learners EL.
- Among students of S1 and D3 there are no different levels of learning on e-learning EL.

- Among students of Information Engineering S1 and D3 there are no different levels of behavior towards e -learning EL.
- Among students of Information Engineering S1 and D3 there are differences in the answers on the result level.

CONCLUSION

Summary of evaluation of EL multimedia outline is:

a. Disadvantages:
   - not be able to do interactive learning direct of face to face (teleconference) between learners with teachers and between groups of learners from the classroom/school,
   - only supports mobile multimedia icon for mobile phone/tablet with android operating system, when many mobile phones have operating system IOS operating system, QNX, and Windows,
   - does not include audio multimedia components as a medium of communication students and lecturers or students with students, whereas the multimedia audio components useful for saving cost, easy to use, supports highly interactive learning and help learners with limited reading,
   - not fully user friendly,
   - variations in the file types for student assignments, which can be uploaded (document file) limited,
   - in the design of the interface, there is no feature to provide value as well as feedback duties collected by the students,
   - the absence of "help" menu in multimedia product that may be required by the user. if users want to know what can be found in learning multimedia; how to use the menu on each page of the menu, any information that could be obtained from each page of the menu, or other assistance.
b. Advantages:
   - Supports self-learning facilities for students to access learning materials which were uploaded by lecturers and receive/send text messages (instant message) to other students or to lecturer;
   - Facilitating Learner-centered learning and interactive with text media;
   - An E-learning facilitating distance instructional with web-client and mobile.
c. E-learning multimedia EL provides benefits, interest/reaction, understanding, changes in behavior/attitude and influence learning/teaching a satisfactory result (good).
d. There are significant differences influence/benefits and the level of the result of the implementation of e-learning EL between students of S1 and D3 Stmik Bumigora Mataram. And there was no difference in terms of the level of reaction, learning and behavior towards the use of e-learning EL for students of S1 and D3 of STMIK Bumigora Mataram.

REFERENCES

Deporter, B. (2009). *Quantum Learning: Familiarize Learning Comfortable and Enjoyabl*e. Bandung: Kaifa.

England, E., & Finney, A. (1999). *Managing Multimedia: Project Management for Interactive Media*. Pearson Education Limited.

ISBN 978-602-73030-1-0

Given, B. K., & Deporter, B. (1992). *The Quantum Learning System: Excellence in Teaching and Learning*. United States of America.

Gleder, M. E. (2012). *Learning and Instruction: Theory and Application*. Pearson.

Kamsin, A. (2005). Is E-Learning the Solution and Substitute for Conventional Learning?. *International Journal of The Computer, the Internet and Management: Vol. 13. No. 3* (pp. 79-89).

Kirkpatrick, D. L., & Kirkpatrick, J. D. (2006). *Evaluating Training Programs: The Four Levels*. San Francisco, California: Berret-Koeler.

Lee, W. W., & Owens, D. L. (2004). *Multimedia-Based Instructional Design*. John Wiley & Sons, Inc.

Luther, A. C. (1994). *Authoring Interactive Multimedia*. Boston: AP Professional.

Mulyanta & Leong, M. (2009). *Interactive Multimedia Building Tutorial: Learning Media*. Yogyakarta: Universitas Atmajaya.

Munthe, A. P. (2015). Importance of Program Evaluation in Education Institutions: An Introduction, Definition, Objectives and Benefits. *Scholaria: Vol.* 5, *No. 2* (pp. 1-14).

Novisemood. (2012). *PC, Tablet (Ipad), and Handphone operating system*. Retrieved from https://novisemood.wordpress.com/2012/02/24/sistem-operasi-pada-pctabletipad-dan-handphone/

Kuncara, P. (2016). *Differences Extension Image JPG, GIF, PNG, BMP and TIFF*. Retrieved from http://klikhost.com/perbedaan-ekstensi-gambar-jpg-gif-png-bmp-dan-tiff/

Reiser, R. A., & Dempsey, J. V. (2012). *Trends and Issues in Instructional Design and Technology*. Pearson.

Schwier, R. A, & Misanchuk, E. R. (1987). *Interactive Multimedia Instruction*. New Jersey: Englewood Cliffs.

Simonson, M., Smaldino, S., Albright, M., Zvacek, S. (2012). *Teaching and Learning at a Distance*. Pearson.

Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2008). *Instructional Technology and Media for Learning*. Pearson Merill Prentice Hall.

Suparman, M. A. (2014). *Modern Instructional Design: Guiding for Teachers and Education Innovators*. Erlangga.

Sutopo, A. H. (2012). *Information and Communication Technology in Education*. Yogyakarta: Graha Ilmu.

Tidwell, D., Snell J., & Kulchenko, P. (2001). *Programming Web Services with SOAP*. Colorado, NewYork: O'Reilly Publisher.

Wagner, N., Hassanein, K., & Head, M. (2008). Who is responsible for E-Learning Success in Higher Education? A Stakeholders' Analysis. *Educational Technology & Society: Vol. 11, No. 3* (pp. 26-36).

E-LEARNING IMPLEMENTATION QUALITY GUARANTY THROUGHOF ASSESSMENT AND EVALUATION

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Abstract

Learning based on information technology, one of which is the e-learning, that lately has become an innovation in higher education. E-learning has become an alternative for some people to follow the educational program. E-learning program is now widespread. Based on the growth of e-learning, it necessary to ensure the quality of e-learning program, by the means e-learning assessment and evaluation. E-learning assessment is often required to demonstrate, that an individual has achieved a certain level of ability. This article discusses the main characteristics of the assessment and evaluation of implementation an e-learning.

Keywords: *e-learning, assessment, evaluation*

INTRODUCTION

The times and the era of globalization characterized by rapid product and utilization of information technology, have resulted in a shift in the concept of organized learning in information technology-based learning efforts. E-learning is one manifestation of the concept of implementation of information technology-based learning.

Assessment and evaluation of e-learning program is essential to ensure the quality of learning outcomes of educational program itself, as a result of the development of the educational program. The terms of evaluation and assessment are confusion. For some it can be explained by a different understanding of evaluation in different countries. It seems there is more reliance on the judgment or achievement as a basis for evaluation (Attwell, 2006). Garrison and Anderson stated that usage of the terms assessment and evaluation of appropriate assessment that the assessment includes assessing the acquisition of skills and behavior: and include competence; competence in the cognitive domain, including the capacity to apply critical and creative solutions to complex problems; and attitudes, including the capacity to be critical, supportive, enthusiastic or skeptical as required in a particular context.

On the other hand, evaluation is used to refer to the act of comparing unit, subject matter, or program to a series of performance or outcomes (Garrison & Anderson, 2003). Measures to be taken in this paper is to provide an understanding of the assessment and evaluation of electronic learning.

LITERATURE

Definition of E-learning

E-learning according to Clark and Mayer (2011) is "instruction delivered on a digital device such as a computer or mobile device that is intended to support learning" (Clark & Mayer, 2011). Rashid, et al., (2016) states that actually involves e-

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learning technology and pedagogy (Zarina A. R., et al., 2016). Clarey defines e-learning as follows:

> e-learning as instruction accessed electronically on a computer. This instruction could be a class, a course, or a discussion and could look like a book, a movie, a Web page, a game, or a combination of reviews those things (Clarey, 2008).

Thus, e-learning can also be expressed as learning accessible electronically either via computer or mobile device.

Assessment and Evaluation in E-Learning

Assessment in E-Learning

In connection with the assessment, Garrison and Anderson (2003) stated the following: Assessing Learning, that the theory and practice of the quality of learning has now been developed for many years and has direct relevance on the draft assessment for e-learning. The function of the assessment is to provide feedback to students, providing an integrated mechanism between external measurements of learning and understanding of the learning process, is a fundamental mechanism of the trust process, learners motivated by assessment activities, evaluate the effectiveness of the learning program. Assessing Quality, that assessment should be related and congruent with the learning objectives and activities to obtain the intended outcomes. Assessing Participation, some e-learning teachers to determine the level of student participation on-line. Assessment Activities, an e-learning experience that is both balanced contains a set of learning activities that work individually and together to encourage engagement, discourse, and order higher learning in the community. Authenticating Assessment, e-learning must address the problem of authentication of student learning when students are not physically present. Students Participation, their collaborative learning as an important role of e-learning assessment.

According to Liu (2015), the principles assessment that are important to the environment of online learning: assessment tasks must be sustainable, must be explicit about the goals, values, requirements and assessment criteria, to be authentic is to help students to apply what they learn in the world real. While the trends and characteristics of assessment methods include the use of asynchronous discussion, critical thinking and other higher level thinking skills, assessment of real-world tasks, assessment and writing, clear and complete assessment, continuous assessment and continuous.

Evaluation in E-Learning

Garrison and Anderson (2003) stated that the assessment of student learning is an important component in the evaluation of on-line courses as the only factor which educators involved in e-learning has looked. Atwell (2006) state apparatus and instruments for evaluating e-learning consists of two forms: first, the data collected on-line instrument to assess characteristics of a software user interface, secondly, there are some devices to record, analyse duration of use, frequency of log-in, access the page, user profile, and others.

Some of the criteria for evaluating the quality of the proposed e-learning Clarey, namely: Content, Instructional Design, Interactivity, Navigation, Motivational Components, Use of Media, Evaluation, Aesthetics, Record Keeping, Tone.

Project evaluation of an e-learning that has built a comprehensive framework. Most of the several projects evaluation of e-learning has five key clusters that must be raised, namely: 1) Individual learner variables including physical characteristics, learning history, learner attitude of learner motivation familiarity with the technology; 2) Learning environment variables including the immediate (physical) learning environment, the organizational or institutional environment, the subject of environment; 3) Contextual variables, including socio-economic factors, the political context, cultural background geographic location; 4) Technology variables including hardware, software, connectivity, the media mode of delivery; 5) pedagogic variables including the level and nature of learner support systems, accessibility issues., methodology, flexibility, learner autonomy, selection and recruitment, an examination assessment, accreditation and certification.

In evaluating e-learning, performance evaluation proposed Scrivens (2000), an examination of student performance is not the only strong indicator of the effectiveness of e-learning. The performance evaluation was prepared by management of the company on a periodic basis to determine whether the employees work up to, or beyond the minimum standards of their job description, which is assessed by the supervisor or department manager either in written form or checklist, or a combination of both.

Depwell (2007) states that "on the evaluation methodology as a powerful means by the which to ensure that quality, and stability, is considered as an integral part of e-learning implementation".

CONCLUSION

Evaluation methodology as a powerful tool that ensures the quality and stability of an e-learning, is considered as an integral part of an e-learning implementation. The principles assessement is the assessment task must be sustainable, must be explicit and should be authentic. Assessment in e-learning is an important component in the evaluation of on-line programs.

REFERENCES

Attwell, G. (ed.). (2006). *Evaluating E-learning A Guide to the Evaluation of E-learning*–Evaluate Europe Handbook Series Volume 2. Bremen, Germany: Perspektiven-Offset- Druck.

Clarey, J. (2008). *E-Learning 101: An Introduction to E-Learning, Learning Tools, and Technologies*. Sunnyvale: Brandon Hall Research.

Clark, R. C. & Mayer, R. E. (2011). *e-Learning and the Science of Instruction Proven*–Guidelines for Consumers and Designers of Multimedia Learning. Third Edition. San Francisco: Pfeiffer, John Wiley & Sons, Inc.

Dee H. Andrews and Wulfeck II., W. H. (2014), *Performance Assesment: Something Old, Something New.* In Spector, M. et al., (Eds.), *Handbook of Research on Educational Communications and Technology* (p. 303). London: Springer.

Deepwell, F. (2007). *Embedding Quality in e-Learning Implementation through Evaluation.* In *Educational Technology & Society: Vol. 10, No. 2* (pp. 34-43).

ISBN 978-602-73030-1-0

Garrison, D. R. & Anderson, T. (2003). *E-learning in the 21 st Century*. London: Routledge Falmer

Liu, S. (2015). *Assessment Methods in Online Graduate Coursein* Shijuan Liu, Selma Koc, Xiongyi Liu, Patrick Wachira (Eds.) *Assessment In Online And Blended Lerning Environments*. US: Information Age Publishing Inc.

Rashid, Z. A., Sanisah K., Zuriawahida Z., Juliyana S., &Hisyam M. H. (2016) *Review of Web-Based Learning in TVET: History, Advantages and Disadvantages*. *International Journal of Vocational Education and Training Research 2016: Vol. 2, No. 2* (pp. 7-17).

CONTENT EVALUATION OF *MOBILE LEARNING*

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Abstract

The field of mobile learning is at present characterised by a proliferation of designs and trials that allow mobile technologies to be tested out in a variety of learning contexts. The sustained deployment of mobile learning will depend on the quality of these designs and trials, which includes evaluation methodology and reporting. The paper examines current evaluation practice, based on evidence drawn from journals, published case studies, and other accounts from the literature. The authors also draw on their work in collecting case studies of mobile learning from a range of recent projects. Issues deserving examination include the apparent objectives of the designs or trials, the nature of the evaluations, instruments and techniques used, and the analysis and presentation of findings. The paper reflects on the quality of evaluation in mobile learning designs and trials, in the broader context of evolving practices in the evaluation of educational technologies.

Keywords: Evaluation, mobile learning, good practice.

INTRODUCTION

Learning to use the mobile phone is a relatively new trend in the development of e-learning, where with the help of the mobile phone users have access to the course material anywhere and anytime. To support mobile learning required a specially developed system that not only manages learning content but also provide adequate adaptation and visualization on the small screen of a mobile device.

Requires a substantial budget for the development of mobile learning, needed an effective way to evaluate mobile learning and ensure that learners are not only fascinated by the new device with an exciting new way for them to learn, but must have an impact on the learning outcomes of students.

Mobile learning is not functioning properly because the system does not correspond to the needs of the user. Evaluation of mobile learning content can be applied in various fields of exact sciences and social good lesson. The evaluation is done to determine the effectiveness of the use of mobile learning to improve learning outcomes of students.

In the development of mobile learning system, the type of evaluation that can be used and the results that can be obtained as a result of those assessments. Most often for the evaluation system for mobile learning using a specially designed questionnaire.

LITERATURE REVIEW

Sampling Data

Questionnaires

The questionnaire is a relatively easy way to get specific information about how users engage with apps. Easily managed online even through the application if

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desired. Questionnaires can be sent to all users or a subset of targeted depending on the purpose of the questionnaire. When choosing to use a questionnaire, there are some important things to keep in mind. One of the most important first steps is to determine if the questionnaire seeks to measure variables related to the student or aspects of the interface.

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Emizir (2015) questionnaire also allows researchers to compare results. It is important to remember to analyze the data, ratings, or an item using the numerical Likert scale, can support quantitative analysis. Instead, multiple choice questions may be more useful if there is a set of options for the user to consider.

a. *Case Studies and Focus Groups*

Case studies and focus groups to explore in detail the question of how an application is used and know the needs of the user. Case studies to obtain detailed information of how an application actually used. It is very helpful for application-based tool that can be used in a variety of ways, including things that developers may never be considered.

Sugiyono (2015) Focus groups typically involves gathering a group of users or potential users to get feedback during a short period of time. There should be a free-flowing dialogue about what works and what does not? The user is asked to propose new features and changes, or to focus more on criticizing the existing special when selecting individuals for focus groups or case studies, consider how your chosen population reflects the target population, taking into account the user who is familiar with the technology.

b. Controlled Studies

The goal is to compare two or more conditions desired results, investigate the complex processes such as learning gains, or a change in the motivation to be achieved through the use of the application. If developers are interested in this type of evaluation for the application, they will consider hiring research personnel or partnerships with local universities or institutes. This type of evaluation can help drive to make the application to the next level and great for getting benefit to potential users (McQuiggan, 2015).

User Interface Evaluation Theory of Mobile Learning

After learning using mobile learning, of course, we have to measure and evaluate. To determine the extent to which the results of learning through mobile learning. The simplest theory of measurement or evaluation of mobile learning is to use the same size as those used to measure the in-class training. In addition, to evaluate web-based learning include mobile learning, it is necessary to use the model ADDIE (Branch, 2010) There are four kinds of mobile learning evaluation using ADDIE models, among others:

1. *Subject Matter Expert Evaluation*
2. *Rapid Prototype Evaluation*

3. *Alpha Class Evaluation*
4. *Desaining Evaluation*

Implementation and evaluation are shown in the model ADDIE two separate stages and linear nature. There are many instruments are detailed to evaluate mobile learning. Generally divided into two types. The first one, there is an on-line instrument to assess the characteristics of the software. Secondly, there are tools to record and investigate the use of the duration and frequency, either through notes in, pages accessed, user profiles and others. There are two parts to keep in mind in evaluating the mobile learning.

Technology Acceptance Model (TAM)

According to Dorina M (2009) there are some models that are built to analyze and understand the variables that affect the user acceptance of information technology, among others; Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), and the Technology Acceptance Model (TAM).

TAM developed a model of psychological theory, which describes the behavior of computer users that are based on beliefs, attitudes, desires and relationships user behavior. The purpose of this model to explain the main factors of user behavior on user acceptance of the technology. This model puts attitude factor of each user's behavior variables: ease of use (ease of use), utility (usefulness), use (Attitude toward Using), the behavior to keep using (Behavioral Intention to Use), and the real conditions of use of the system (Actual System Usage).

How to Measure Effectiveness of Mobile Learning

According to Churchill (2016) there are four ways to measure the effectiveness of the use of mobile learning to improve learning outcomes of students, including:

a. Analyze the contribution of learners in an online forum
   Evaluation can be done on the basis of the number of times a student has answered the question in the forum. By analyzing how much experience or findings are posted. Number of times the learner posting flagged or forwarded by his colleagues, could be an effective step in learning.
b. Measuring how and how many students use their mobile devices
   The number of times that a learner log on to the Learning Management System (LMS) using a mobile device or search for relevant course content on a handheld device it could be a sign that the business of mobile learning effectively. Increased learning time on a mobile device is a sure sign that students are interested in learning on this device.
c. Analyzing the quality of a text report or task
   The same thing happens when learning is delivered via e-learning or even through classroom sessions. In the case of mobile learning, text report can be written on their own mobile devices and delivered online. Textual content should not be extended to present a clear picture of the effectiveness of learning. A short descriptive question or objective tests can also be used in the evaluation.
d. Actual collecting log data, with each to be built into mobile learning interactivities
   Challenges evaluation of mobile learning and create more effective data collection for analysis. In a continuous process creating a more effective way

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to deliver mobile learning, evaluation methods should be developed to ensure the true value of mobile learning in a modern context.

CONCLUSIONS

Evaluation is a key to the success of mobile learning because it can provide information about the effectiveness of mobile learning that has been tested. Evaluation of applications constant basis is essential to ensure that the mobile applications to meet user needs. Slow application is likely to be soon forgotten. The best way to identify success and for repair of an application is to collect evaluation data. Important stages of the use of knowledge to continuously improve learning mobile applications that generate innovation in education truly transformative.

REFERENCES

Emizir. (2015). *Metode Penelitian Pendidikan*. Jakarta: Raja Wali Press

Branch, Robert Maribe. (2010). *Instructional Design: The ADDIE Approach.* New York: Springer.

Churchill, Daniel, Lu, Jie. Chiu, Thomas. (2016). *Mobile Learning Design: Theories and Application*; *Lecture Notes in Educational Technology*. NewYork: Springer.

Crompton, Helen & Traxler John. (2015). *Mobile Learning and Mathematics*: *Foundation, Design and Case Studies*. Routledge. Francis.

Dorina M, 2009. *Usability Evaluation of Information Systems: A Review of Five International Standards Information Systems Development: Challenges in Practice, Theory,and Education, Vol. 1*.

McQuiggan, Scott Kosturko and Sabourin Jennifer. (2015). *Mobile Learning: A Handbook for developers, Educators and Learners*. New Jersey Canada: Wiley.

Sugiyono. (2015). Metode Penelitian & Pengembangan. Bandung: Alfa Beta.

THE EVALUATION ASPECTS IN THE E-LEARNINGDEVELOPMENT

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Abstract

E-learning as a learning system, in the process of development covering a wide range of disciplines. Various disciplines directly related to among others, education technology, computer and visual communication. Therefore, the stages in the development of e-learning to follow the rules of the instructional model development that are commonly used. One important stage in the process of developing an e-learning is evaluation. Evaluation in the development of e-learning, there are two, namely the formative evaluation and summative evaluation. In conducting the formative evaluation of e-learning developer should determine aspects along with the criteria in this evaluation. In this case there are three aspects together with its requirements respectively. These three aspects, namely: software engineering aspects, aspects of instructional design and aspects of visual communication. Evaluation of these aspects each includes effectiveness, cost efficiency, stakeholder satisfaction and sustainability.

Keywords: E-learning, Evaluation, Learning Systems

PRELIMINARY

The development of e-learning as a learning system has one of the components to be considered to be sustainable and provide a positive influence in the implementation. The components that evaluation according to Stufflebeam is the process of obtaining and presenting information that is useful to consider alternatives to decision-making (Stufflebeam, 2002: 22). In this case that is required in the system of e-learning is not only a skilled educators use technology for content creation of teaching materials, but we need a plan in order to implement effective learning.

Evaluation in the development of e-learning, there are two, namely the formative evaluation and summative evaluation. Formative evaluation is done by the developer when the development process is underway with the aim to become a better product before the product is widely used by users. While the summative evaluation conducted by an external party when the product has been completed and used by the user, so that can know the effectiveness of the e-learning products. Kirkpatrick evaluation model or models of Stufflebeam CIPP can be used in carrying out this summative evaluation.

Therefore, the evaluation is one important step in the process of developing e-learning. The development of e-learning start learning plan that includes four main components, namely the objectives, materials or teaching materials, teaching and learning activities, and evaluation (Sisco, 2010: 25). Evaluation of their activities in the development of e-learning will be obtained by e-learning products that actually qualified according to the criteria that have been set. This study will look at what aspects should be considered to determine the various criteria in the formative evaluation on the development of e-learning as a consistent learning.

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LITERATURE REVIEW

E-Learning

E-learning is a form of learning model that facilitated and supported the use of technology-information and communication's-learning system is characterized, among others (Clark & Mayer, 2008: 10): 1) have content that is relevant to the learning objectives, 2) using instructional methods, such as the presentation of examples and exercises to improve learning, 3) using the media elements such as words and pictures to convey me-learning materials, 4) possible direct learning cantered teaching (synchronous e-learning) or designed for independent learning (asynchronous e-learning), 5) build understanding and skills related to learning objectives either individually or improve the performance of group learning.

Meanwhile, according to Rusman, et al., (2011: 264) e-learning has characteristics, among others, (a) interactivity (interactivity), (b) independency (autonomy), (c) accessibility (accessibility), (d) enrichment (enrichment). E-learning can be defined as a form of applied information technology in education in the form of a virtual world. The term e-learning is more appropriately addressed in an effort to create a transformation process of learning in high school or college into a digital form that is bridged internet technology (Munir, 2009: 169). Seok (2008: 725) states that "e-learning is a new form of pedagogy for learning in the 21st century. e-Teacher are e-learning instructional designer, facilitator of interaction, and subject matter experts".

Various definitions of e-learning presented above shows that e-learning is a learning system that can be developed for a variety of learning needs and learning. Therefore, in the development process should be strictly in accordance with the criteria in the development of a learning system. The use of e-learning applications for online learning at the present time it is easy to take advantage of the module Learning Management System (LMS) that is easy to be installed and managed like Moodle as one example of software that can be used. Software that is used must meet the requirements analysis of software which is divided into five parts, namely the analysis: (1) problem recognition, (2) evaluation and synthesis, (3) modelling, (4) specification, and (5) review (Roger S. Pressman, 2004: 272)

Aspects and Evaluation Criteria E-Learning

Aspects and criteria for the evaluation of e-learning should be determined to assess the software as a medium of learning in e-learning. In the field of software engineering techniques actually existing measurement software, but software as a medium of learning, including the type of software that covers various disciplines such as learning, visual design, and communication. One measure of quality software that can be used for e-learning is a taxonomic McCall.

Taxonomy McCall software quality can be measured k quantitative by specifying parameters or attributes measurements are arranged in a hierarchical manner, where the top level (high-level attribute) called factor (factor), and the lower level (low-level attribute) is called with the criteria (criteria). Factors demonstrate product quality attributes from the perspective of the user. While the criteria is the quality parameters of products from the perspective of its own software. These factors and criteria causally (cause-effect) (JA McCall, 1997). Furthermore, the software

quality is measured by the method of summation of the overall criteria in accordance with the weighting factor (weight) that has been set (TP Bowen, 1985).

Software designed for e-learning needs to consider various interactions that may occur in the learning process. There are 3 social interactions that may occur on a system of e-learning and distance education, namely: 1) the interaction between the learner to the subject matter, 2) the interaction between learners and tutors, 3) the interaction between learners and other learners (Bates, 2005: 61). In this case the evaluation of e-learning system includes three aspects, namely software engineering, aspects of instructional design (instructional design) and aspects of visual communication. The criteria for each of the aspects described as follows.

a. Aspects of Software Engineering
    1. Effective and efficient in the development and use of media;
    2. Reliable (reliable);
    3. Maintainable (can be maintained/managed with ease);
    4. Reusability (easy to use and simple in operation);
    5. The accuracy of selection of the type of applications/software/tool for development;
    6. Compatibility (can run on different hardware and software);
    7. Packaging and easily integrated program in execution;
    8. Program documentation (installation, trouble shooting and program design);
    9. Reusable (can be reused for other study).

Aspects of software engineering is important to note as one of the factors that determine the quality of e-learning as a learning system that is highly dependent on the application program created as the main medium. This is because e-learning develop internet based, as stated Marc J. Rosenberg (2001: 28), that e-learning is the use of Internet technology to deliver a range of solutions that can improve their knowledge and skills.

b. Aspects of Learning Design
    1. Clarity of learning objectives (formulation, realistic);
    2. The relevance of the learning objectives with Curriculum;
    3. The scope and depth of learning objectives;
    4. The accuracy of the use of learning strategies;
    5. Interactivity;
    6. Providing motivation to learn;
    7. Conceptuality and actuality;
    8. Completeness and quality of learning aid materials;
    9. Depth and appropriate materials with the aim of learning;
    10. Ease to understand;
    11. Systematically, trace, clear logic flow;
    12. Clarity of description, discussion, examples, simulations, exercises;
    13. Consistency evaluation with the aim of learning;
    14. The accuracy and permanence evaluation tools;
    15. Giving feedback on the evaluation results.

c. Aspects of Visual Communication
    1. Communicative; according to the message, and is intended targets;
    2. In the following creative ideas pouring ideas;
    3. Simple and Alluring;

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4. Audio (narration, sound effects, back sound, music);
5. Visual and Interactive Layout(design, typography, colors, navigation icons);
6. Media moves (animations, movie).

CONCLUSION

Evaluation is the final step in the process of developing a system including the system of e-learning. Through the implementation of this evaluation can be known weaknesses of e-learning, then make improvements to e–learning more qualified. Evaluation as a process that can be used to measure the level of success of a program. In the development of e-learning evaluation was conducted to determine the achievement of e-learning itself. The evaluation is considered as an instrument of quality improvement.

In evaluating the development of e-learning, there are many instruments that can be used. In general, such instruments are divided into two types, namely:

1. Instrument online. Which is used to assess the characteristics of users of the software?
2. Instrument used to record and investigate the use of a period of time, either from the user profile or from the pages accessed.

There are several aspects of e-learning which will be evaluated, including:

1. Effectiveness
   Through the performance evaluation to determine the function of infrastructure.
2. The cost efficiency
   To determine the extent of use fees.
3. Learners and stakeholder satisfaction (stakeholders)
   To measure the benefits of using e-learning.
4. Sustainability (Sustainability)
   The suitability of the material with the purpose of learning, scientific developments and knowledge level learners.

BIBLIOGRAPHY

Bates, A. W., & T. Bates. (2005). *Technology, e-learning and distance education: the second edition*. New York: Routledge Press.

Clark, R. C., & Mayer, R. E. (2008). *E-learning and the science of instruction: proven guidelines for consumers and designers of multimedia learning, second edition*. San Francisco: John Wiley & Sons, Inc.

JA McCall, PK Richards, and GF Walters. (1997). *Factors in Software Quality, Tehnical Report RADC-TR-77-369*. US Department of Commerce.

Roger S. Pressman. (2004). *Software Engineering: A Practitioner's Approach Fifth Edition*. McGraw-Hill.

Rosenberg, Marc J. (2001). *E-Learning: Strategies for Delivering Knowledge in the Digital Age*. United States of America: The McGraw-Hill Companies.

Seok, Soonhwa. (2008). The aspect of e-learning. *International Journal on eLearning, Proquest: Vol. 7, No. 4* (pp. 725-741).

Sisco, Ashley. (2010). *First Nations for e-learning of the Optimizing effectiveness*. Ottawa: The Conference Board of Canada.

Stufflebeam, DL, Madaus, GF, & Kellaghan, T. (2002). *Evaluation models, Viewpoints on educational ang human services evaluation, second edition*. New York: Kluwer Academic Publishers.

TP Bowen, GB Wigle, and JT Tsai. (1985). Specification of Software Quality Attributes: Software Quality Evaluation Guidebook, Technical Report RADC-TR-85-37, Rome Air Development Center, Griffiss Air Force Base.

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AN EVALUATION OF MOBILE LEARNING

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Abstract

The mobile learning currently exploits both handheld computers and mobile telephones and other devices that draw on the same set of functionalities. Mobile learning using handheld computers is obviously relatively immature in terms of both its technologies and its pedagogies, but is developing rapidly. It is entirely possible that the emergence of mobile learning in developing countries will take the evolution of e-Learning along a trajectory that is very different from that in developed countries, where it has been predicated on massive, static, and stable resources. Distance learning will form a significant component of this because of its existing status within the development communities. During the early days of mobile learning, developers became aware of significant issues that came with the adoption of mobile devices for learning. Technical issues such as managing learning technology with short battery life were on one side. On the other were pedagogical issues, such as delivering teaching content through a small device. With the immense popularity and easy availability of mobile devices, they are now being utilized for shopping, banking, gaming, entertainment, and even advertising. There is a huge opportunity to design learning differently through learning communities, just-in-time, and on demand learning as well as encourage the habit of lifetime learning. Coupled with the internet revolution which enables people to access, create, and share media across the world, mobile learning is the way that the learners of the modern generation prefer to learn. Since considerable budgets are spent on mobile learning development, it is necessary to find effective ways of evaluating mobile learning and ensure that learners are not just fascinated by the new devices in a way which they may find interesting, but here is a lasting valuable impact of mobile learning on their work practices as well.

Keywords: Mobile Learning, Evaluation Mobile Learning

INTRODUCTION

The use of wireless, mobile, portable, and handheld devices are gradually increasing and diversifying across every sector of education, and across both the developed and developing worlds. It is gradually moving from small-scale, short-term trials to larger more sustained and blended deployment. The growing pedagogic and technological sophistication of mobile learning pilots and trials is evident, but increased and sustained deployment of mobile learning will depend of the quality of analysis and evaluation of these pilots and trials. The mobile learning currently exploits both handheld computers and mobile telephones and other devices that draw on the same set of functionalities. Mobile learning using handheld computers is obviously relatively immature in terms of both its technologies and its pedagogies, but is developing rapidly. It draws on the theory and practice of pedagogies used in technology enhanced learning and others used in the classroom and the community, and takes place as mobile devices are transforming notions of space, community, and discourse (Katz & Aakhus, 2002; Brown & Green, 2001) and the investigative ethics and tools (Hewson, Yule, Laurent, & Vogel, 2003). With the immense popularity and

easy availability of mobile devices, they are now being utilized for shopping, banking, gaming, entertainment, and even advertising. There is a huge opportunity to design learning differently through learning communities, just-in-time, and on demand learning as well as encourage the habit of lifetime learning. Coupled with the internet revolution which enables people to access, create, and share media across the world, mobile learning is the way that the learners of the modern generation prefer to learn. Since considerable budgets are spent on mobile learning development, it is necessary to find effective ways of evaluating mobile learning and ensure that learners are not just fascinated by the new devices in a way which they may find interesting, but here is a lasting valuable impact of mobile learning on their work practices as well.

Bates and Poole (2003) have proposed a model for the effective use of technology for teaching in higher education that suggests eight criteria to be used in determining choice of technology. An investigation of whether the right technology has been selected is arguably an important aspect of a comprehensive evaluation of mobile learning. This criterion was subsequently de-emphasized and subsumed under 'appropriateness for students'. However, our own analysis of the reasons why teachers are using mobile technologies suggests a possible reinstatement of access as a key criterion in relation to these new technologies. There are a wide variety of other authors offering complementary and perhaps competing criteria for all the various aspects of evaluating mobile learning; one way of addressing this complexity and of exploiting growing experience and expertise would be to use (online) Delphi techniques to develop more consensual criteria (see for example, Des Marchais 1999), and perhaps to use 'contrived 'elicitation techniques (Rugg and McGeorge 1992) to uncover the value systems that underlie experts' evaluation criteria.

LITERATURE

Definition of Mobile Learning

In spite of the activity cited above, the concept of mobile education or mobile learning is still emerging and still unclear. How it is eventually conceptualised will determine perceptions and expectations, and will determine its evolution and future. There are different stakeholders and factors at work in this process of conceptualising mobile education and the outcome is uncertain. There are obviously definitions and conceptualisations of mobile education that define it purely in terms of its technologies and its hardware, namely that it is learning delivered or supported solely or mainly by handheld and mobile technologies such as personal digital assistants (PDAs), smartphones or wireless laptop PCs. These definitions, however, are constraining, techno-centric, and tied to current technological instantiations. We, therefore, should seek to explore other definitions that perhaps look at the underlying learner experience and ask how mobile learning differs from other forms of education, especially other forms of e-Learning. If we take as our starting point the characterisations of mobile learning found in the literature (the conference proceedings from MLEARN and WMTE for example), we find words such as 'personal,' 'spontaneous,' 'opportunistic,' 'informal,' 'pervasive,' 'situated,' 'private,' 'context-aware,' 'bite-sized,' and 'portable.' This is contrasted with words from the literature of conventional 'tethered' e-Learning such as 'structured,' 'media-rich,'

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'broadband,' 'interactive,' 'intelligent,' and 'usable.' We can use these two lists to make a blurred distinction between mobile learning and e-Learning.

Mobile technologies also alter the nature of work (the driving force behind much education and most training), especially of knowledge work. Mobile technologies alter the balance between training and performance support, especially for many knowledge workers. This means that 'mobile' is not merely a new adjective qualifying the timeless concept of 'learning'– 'mobile learning' is emerging as an entirely new and distinct concept alongside the 'mobile workforce' and the 'connected society. 'Mobile devices create not only new forms of knowledge and new ways of accessing it, but also create new forms of art and performance, and new ways of accessing them (such as 'pop' videos designed and sold for *iPods*). Mobile devices are creating new forms of commerce and economic activity as well. So mobile learning is not about 'mobile' as previously understood, or about 'learning' as previously understood, but part of a new mobile conception of society. (This may contrast with technology enhanced learning or technology supported, both of which give the impression that technology does something to learning). In a different sense, ongoing developments on implementing e-Learning, for example in developing the ontologies of learning objects, makes us examine and question how knowledge is organised and interrelated. Here too our notions of knowledge and learning are evolving. It could be argued that the need to organise and navigate through 'bite-sized' pieces of mobile learning content (whether or not as Learning Objects) will also impact on these notions of knowledge and learning and perhaps individual learners will create their own ontologies on-the-fly as they navigate through a personalised learning journey. One can also focus on the nature of mobility in order to explore the nature of mobile learning. For each learner, the nature of 'mobility' has a variety of connotations and these will colour conceptualisations of mobile education. It may mean learning whilst travelling, driving, sitting, or walking; it may be hands-free learning or eyes-free learning. These interpretations impact on the implementation and hence the definition of mobile learning. Having earlier discounted technology as a defining characteristic of mobile learning, it may in fact transpire that different hardware and software platforms support rather different interpretations of mobile learning.

Evaluation Mobile Learning

This section makes the case that the increasing diversity of mobile education and the increasing power, sophistication, and complexity of mobile technologies call into question the adequacy of the conventional repertoire of evaluation techniques based largely around formal, sedentary, and traditional learning. This has always been the case with informal and distance learning anyway. There is a need for a more comprehensive, eclectic, and structured approach to evaluation based on sound and transparent principles. The section briefly elucidates these principles and shows how they can be used to underpin evaluation methodologies appropriate to mobile education.There are a variety of problems associated with evaluating mobile learning. Perhaps the most fundamental is the problem of defining the characteristics of a 'good' or acceptable evaluation though, of course, the issue of evaluating mobile learning will also take us back to the issue of defining and conceptualising mobile learning. A definition or conceptualisation of mobile learning in terms of learner experience will take evaluation in a different direction from a conceptualisation of mobile learning in terms of hardware platforms. Of course, the categorisation of

mobile learning (above) will also influence the practicalities and the priorities of evaluation. What is not always accepted is that there are no *a priori* attributes of a 'good' evaluation of learning (to say that there were would be to take an implicitly realist or essentialist position that not every stakeholder would agree with, and would also confront a widely held view that in fact evaluation is a contingent activity). In an earlier work, we tried to outline some tentative candidate attributes of a 'good' evaluation (Traxler, 2002), but we also identified the reasons why evaluation of mobile learning is unusually challenging. Briefly some of these attributes were that a 'good' evaluation could be:

1. Rigorous, meaning roughly that conclusions must be trustworthy and transferable;
2. Efficient, in terms of cost, effort, time, or some other resource;
3. Ethical, specifically in relation to the nuances of evolving forms of provision, in terms of standards from:
   a) Legal to
   b) Normative
4. Proportionate, that is, not more ponderous, onerous, or time-consuming than the learning experience or the delivery and implementation of the learning itself (bearing in mind earlier remarks about the learners' experiences of mobile learning);
5. Appropriate to the specific learning technologies, to the learners, and to the ethos of the learning – ideally built in, not bolted on;
6. Consistent with the teaching and learning philosophy and conceptions of teaching and learning of all the participants;
7. Authentic, in accessing what learners (and perhaps teachers and other stakeholders) really mean, really feel, and sensitive to the learners' personalities within those media;
8. Aligned to the chosen medium and technology of learning ;
9. Consistent across:
   a) Different groups or cohorts of learners in order to provide generality;
   b) Time, that is, the evaluation is reliably repeatable;
   c) Whatever varied devices and technologies are used.

The last of these attributes is challenging in mobile learning, since the technologies are changing at an exceptional pace and consequently reaching any understanding of underlying issues is difficult. The success of technology-aided learning is closely related to the learner's achievement in pre-identified learning outcomes. This is true for mobile learning as well, but the nature of learning outcomes in the mobile age needs to be adaptive. Here are 4 ways to measure the effectiveness of mobile learning:

1. *Analyzing the learners' contribution on online forums.* Learners may assimilate information into their own experience and development, rather than reproducing knowledge in a pre-post questionnaire or traditional test. Practical opportunities of sharing and applying knowledge should be provided to ascertain the effectiveness of learning. A very sound way of doing this is by analyzing the learners' contribution to the topic on online forums. Such forums can be specially created to encourage the learners' online contributions. Evaluation can be conducted on the basis of how many times the learner has answered a query in the forum. Or it can also be deduced by analyzing how many experiences or findings has he or she

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posted. Peers can "like" these posts or tag them as useful to fellow learners. The number of times a learners' post tagged or forwarded by his or her peers can also be an effective measure of learning effectiveness.

2. *Measuring how and how much learners use their mobile devices.* The number of times that a learner logs on to the Learning Management System (LMS) using the mobile device or searches for relevant course content on his handheld device can be a sign that the mobile learning endeavour is effective. Increased learning time on the mobile device is a definite sign that learners are keen on learning on these devices.
3. *Analyzing the quality of a text report or assignment.* The same happens when the course is delivered through traditional eLearning or even through classroom sessions. In the case of mobile learning, the text reports can be written on mobile devices themselves and submitted online. The textual content does not have to be extended to present a clear picture of learning effectiveness. Short descriptive questions or objective test papers can also be utilized to throw light upon learning evaluation.
4. *Collecting actual log data, with respective to the interactivities built within the mobile learning course.* For instance, the fact that a learner accesses a particular section of the course more than one time is an indicator that the section contains material which definitely garners his attention or he finds it useful. This is especially true if the course is fortified with audio-visuals or even short skill-based games which the learner wants to experience more and then apply to his work. Not only does this throw light on the effectiveness of content, it also reveals what kind of content most appeals to learners.

Evaluation needs to respond to the challenges of mobile learning and create more avenues of effective data collection as well as analysis. In the continuous process of creating more effective ways of delivering mobile learning, stringent methods of evaluation also need to be developed to ascertain the true worth of mobile learning in the modern context.

CONCLUSION

This has been a very wide-ranging attempt to explore the nature and possibilities of mobile learning. It draws together much existing work, but this is still a relatively immature field. It has not explored the actual technologies or pedagogies in any detail and has sought to define questions for discussion rather than provide answers for what might in fact be premature or inappropriate questions. It is too early to describe or analyze the specifics of mobile learning for distance learning since the field, as a whole, is new and accounts are relatively sparse. The synergy between mobile learning and distance learning, however, holds enormous potential.

This flexibility may result in some consequences that learners may not have imagined. One short-term drawback of extensive use of mobile technologies by learners is the problem of information and interaction overload. Anytime and anywhere connectivity may become $24 \cdot 7$ headaches; which may result in the danger of learners becoming chaotic. On the other hand, access to information at the point of relevance may make it possible for adult learner to minimize their unproductive time, which may enhance their work-life-education balance. Although mobile devices will always be small, new technology is being developed to allow these devices to project

an infrared (virtual) keyboard on a user's desk and a large screen image on the wall for a better visual display. Although it seems inevitable that m-learning will soon be an essential extension of e-learning, this transition will not occur over night. The promise of instant access to learning anytime and anywhere is an enormous benefit, but will be restricted until the technology of wireless data access matures and educators learn how to apply appropriate pedagogies from both social constructive and conversational theories, mentioned earlier. A major bottleneck from the student's point of view for our current application was the user-interface. Therefore, in the next phase, we plan to explore how to enhance user-interfaces with speech recognition technology. For example, interactive voice recognition (IVR) technology can be used for voice-activated user navigation and voice messages can be converted to text before sending them on the discussion board. These enhancements are crucial for sustaining the growth of mobile devices in education.

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REFERENCES

Attewell, J., & Savill-Smith, C. (Eds.). (2003). *Learning with Mobile Devices: Research and development. MLEARN '03 Book of Papers.* London: Learning and Skills Development Agency.

Brown, B., & Green, N. (2001). *Wireless World: Social and interactional aspects of the mobile age.* New York: Springer-Verlag.

Des Marchais JE (1999). A Delphi Technique To Identify And Evaluate Criteria For Construction Of PBL Problems. *Medical Education: Vol. 33, No. 7* (pp. 504-508).

Hewson, C., Yule, P., Laurent, D., & Vogel, C. (Eds.) (2003). *Internet Research Methods: A practical guide for the social and behavioural sciences* (New Technologies for Social Research series). London: Sage.

Katz, J. E., & Aakhus, M. (Eds.) (2002). *Perpetual Contact–Mobile Communications, Private Talk, Public Performance*. Cambridge, UK.: Cambridge University Press.

Patton M Q (2001). *Qualitative Research and Evaluation Methods*. London: SAGE Publications.

Rugg G and McGeorge P. (1992). Uses of Contrived Knowledge Elicitation Techniques. *Expert Systems* (pp. 149-154).

Traxler, J. (2002). *Evaluating m-learning. Proceedings of MLEARN 2002, European Workshop on Mobile and Contextual Learning* (pp. 63-64), University of Birmingham, 20-21 June 2002

ELECTRONIC & MOBILE PROGRAM IN PRACTICE

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COOPERATIVE LEARNING WITH HARNESSING SOCIAL NETWORK SITE FACEBOOK FOR SPEAKING COURSE IN BLENDED LEARNING ENVIRONMENT

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Abstract

Some lectures considered social media site is the popular platform for online learning among students of university. They recognized the assistance that such sites affordable easily provide cooperation activities such as dissemination and creation information, and also in receiving feedback. The individuality, self-expression, self-assertion, personality, and communication are being promoted by Facebook for facilitating way of cooperative learning. The purpose of this study is to offer an effective, an efficient and an interesting model that enable university students to cooperation through Facebook learning environment that could support, enhance and/or strengthen their learning of the speaking skill

Keywords: Facebook, Social Networking Sites, blended learning, social network site blended Learning, Social Media

BACKGROUND

Internet technology has changed learning environment. The most internet technology is social media Site or social networking. On the base of http://www.statista.com. accesed 29 of Nov, 2015) that the number of social network users in Indonesia from 2014 (64,5), 2015 (72,3), 2016 (82) in million user. In 2017, it is estimated that there will be around 92.1 million social network users in Indonesia, up from 72.3 million in 2015 (http://www.statista.com/statistics/ 247938/number-of-social-network-users-in-indonesia). Harvey and Kerric (2013: 860) stated that Facebook, Twitter and Instagram are social network sites can be leveraged together. These Online *social media* leads to crowded *interaction* among students, students-Lecture and students-administrators of school. S*ocial media*" may be new; however, the idea of using media environments for socializing practices goes back to the ... technologies have been used to create media environments that *facilitate interpersonal communication (*Konijn, Elly A., et al., 2008: 22)

The data above shows at least every year there are 10 million Facebook users in Indonesia that the majority of users are teenagers, especially students. This is consistent with the results of research and Triyani Arita-Fitr which conducted an online survey consisting of 30 questions in the questionnaire to 329 respondents from two universities in Riau and found that most students have a Facebook account before entering Higher Education (95.14%) and spend less than one hour per day (45.59%) and login to the Facebook site multiple times per day. This popularity should be used as good as possible for learning purpose so that students' motivation and performance grow as well as possible.

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LITERATURE REVIEW

Social Network Site Facebook for learning

Kumi-Yeboah (2014, p.234) Facebook is an online social networking Website originally designed for college students, with Facebook, users can create and customize their own profiles with photos, videos, and information about themselves as well as interact with friends, Patrut, Monica (2013: 402) Facebook is a cost-effective teaching resource and a lot of students are already using it. There is significant social media usage each year by the lecturer. This technology is considered as appropriate tool to be learning medium. Alhazmi, Abdulsalam Kaed (2013: 3304) facebook was significantly related as a medium of learning can improve academic grades (Hew, 2011) in Rimor, Rikki, and Perla Arie (2015: 547) *Facebook's* potential ability to promote *learning processes*, Lee. E. Bun (2014: 11) providing the ability to multitasking significantly. These reasons are should be considered by educators in universities to facilitate student learning and improving performance.

Blended learning course in Facebook environment

The blended learning approach has been adopted many in schools, universities and training sections in the business world. (Cheung and Hew, 2011: 1319). One reasons this approach is obtaining energy for Lecturers and instructors to complement of face to face teaching. Horn and Staker (2011: 1-2) stated that blended learning increasingly will be the media of high school courses bidden online by 2019 become 50%. Social network site technology has altered how the learning process is done, from face-to-face method to blended learning (incoperating of face-to-face and online learning) and fully online learning or commonly known as e-learning. (Lam, Jeanne, 2015: 189).

The results of the study above shows that social media have influence in learning. The challenge is to ensure that technology is used to activate, or create a more efficient, effective teaching and learning practices

Facebook as the most famous social network site can be as medium of learning. Joshua Meyrowitzs (1993) in Richey, Rita C (2010: 85) proposed their views of media as media conduits of content, as languages, and as environments. These media roles can be played in formation of blended learning environment.

Cooperative learning

Cooperative learning refers to “a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific content specific (Ted Panitz, 1997). Emerging technology offers Lecturers and students to cooperate in learning better, They could share information, exchanging documents, learning in group, one of this technology is social network site, Alhajj, Reda, and Jon Rokne (2014: 446) is web-based services that allow individuals to create and share a profile and invite other users to interact and to share content together in a bounded or semi-bounded setting, interacting and sharing content together group community can be as videos, images, tags, lists of friends, forums, and messages.

It is on the base of research the effectiveness of cooperative learning methods is both competitive and individual learning methods in the development of higher-order thinking skills as well as the achievement of greater learning outcomes

(Johnson & Johnson, 1986 in Richey, Rita C., 2010: 85). This suggests that with the help of sufficient scaffolding, or dynamic group support in cooperative environments, provided by inquiry-based computer simulations, an instructor, a more skilled partner, or a more capable peer will enable concrete operational students to enhance their reasoning skills toward formal thought.

In cooperation, the learning is done by individuals, who then contribute their individual results and present the collection of individual results as their group product. Learning in cooperative groups is viewed as something that takes place individually – and can therefore be studied with the traditional conceptualizations and methods of educational and psychological research

Cooperative learning with Social Network Site Facebook for Speaking Course In Blended Learning Environment

SNS is considered as a suitable environment for implementing cooperative learning. DeGarmo, John (2014: 53) this *site allows social interaction between two* or *more users,* Kitsantas, Thomas (2016: 129) found that social networking has a positive effect on student learning, communication, and motivation.

Another effective online instructional technique involves cooperative learning. Cooperative learning is an instructional technique that places heterogeneous groups together to work on specific tasks (Stacey, 1999, in Wang, Haomin, 2011: 289). More Wang, Haomin (2011: 289) quoted (McKcachie, 2002) that Cooperative learners must share equal responsibility within the group: therefore, everyone must contribute and interact with one another in order to be successful. In cooperative learning, each group resembles a small community-type environment where decisions from assigning tasks, to offering constructive feedback must be handled by group exchanges.

Social network sites leverage lectures in delivering instruction, because of it character is to facilitate learning. Huang, Yueh-Min (2013: 535) SNS can provide powerful interaction and assists learners in building the relationship of cooperative learning by using Tablet PCs, and becomes a learning platform for mutual communication between Lecturers and students

One of the most powerful SNS is Facebook, Lam, Jeanne (2015: 192) enabling them to perform questions and solve problems together, Ventura, Rafael (2013: 1036-37) facilitated the use of new teaching resources' represents an extension to the classroom, takes on a greater significance, teaching-learning process becomes more flexible, collaborative in nature, and foster an informal style of communication, Chaka, Chaka, 2016: 510)) *Facebook served as a platform for discussions for students* and instructors. Besides, Facebook can improve the working group significantly, Shraim, Khitam (2014: 250) Facebook provides more opportunities to get personally involved, communicate and work together to help students develop their own learning and develop the skills of the 21st century to live and learn through social interaction. Boghian, Ioana (2013: 87) Facebook responds well to the particularities and requirements of the student-centered approach to teaching and learning

Choosing Facebook as tools and cooperative learning environment for English speaking by giving reason that the most attractive feature for instructional designers is that Face-book is ubiquitous, Norton (2000, 2001), and Kanno and Norton (2003) in George, Johnny (2015: 91) examined the type of English used on

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the Facebook status update pages of 50 Japanese university English majors, The results of study showed that students who use Facebook and Twitter increase their L2 use, even in communication with Japanese colleagues. even though these students a very sense of *feeling comfortable* using the L2 on Facebook or Twitter, Facebook's harmoni with English along with the informality of the medium contributed to the students' strongly wish to use their L2. Muhammad Kamarul Kabilan, et al., (2010: 185) FB could be utilized as an online environment to facilitate the learning of English, Cardenas and Velasquez (2011: 533) in Rimor, Rikki and Arie, Perla (2015: 533) Facebook as a virtual asynchronous environment enable promote the process of learning English as a foreign language

Some researches above indicates that, there are many advantages of facebook, these advantages would be most powerful as learning environments and learning tool if using appropriate model that promote cooperative learning online. McLoughlin, Catherine, and Mark JW Lee (2008: 10) there is a need to rethink models for teaching and learning in order to replace outmoded "closed classroom" models, which place emphasis on the delivery of information by an instructor and/or from a textbook rather than being learner-centric.

Facebook as virtual environment environments consists of chatting room, video session, E-mails, message board, file sharing and others. By leveraging Facebook, the Lectures can deliver the learning materials to the students. the Lectures have to integrate the learning resources, design and appropriate methods in order to facilitate the learning strategies of students' operation and enhance learning efficiency. On the other hands, students can learn from the resources themselves, explore knowledge cooperatively and construct new knowledge constantly thus cultivate their awareness and self-learning ability

In the blended learning environment, it is important to coordinate face-to-face mode and online mode of communication to better support cooperation. A number of frameworks and models are related to blended learning. The model identifies that teaching, cognitive and social presence are required in a cooperative learning environment and suggests that cognitive presence can be created and supported in social Network site environment with appropriate teaching at higher education. Writer proposes a model cooperative learning in the Social Network Site Facebook.

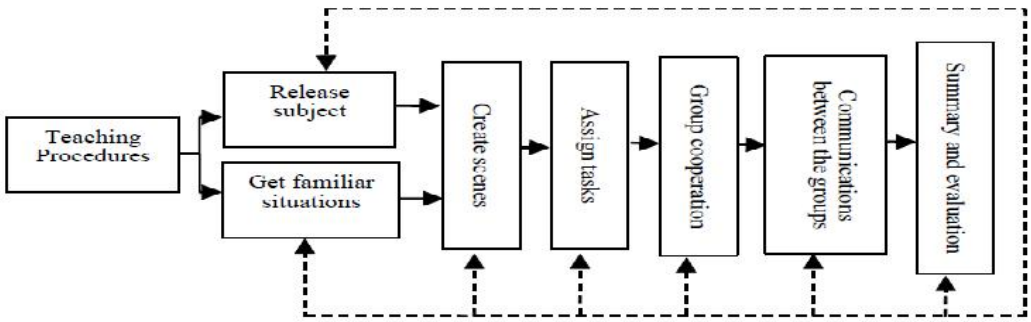

Figure 1: A model cooperative learning in the Social Network Site Facebook

To make sure the efficiency of cooperation learning, the Lectures is advised strongly to guide the students timely in case they couldn't figure out certain problems and he should organize, manage, supervise and coordinate during the instructional

process. Surely, the activities of cooperative learning should include both the activities of Lectures and students in group. The following (Figure 2) will show the The cooperative learning process under the social network Site Facebook environment as follow

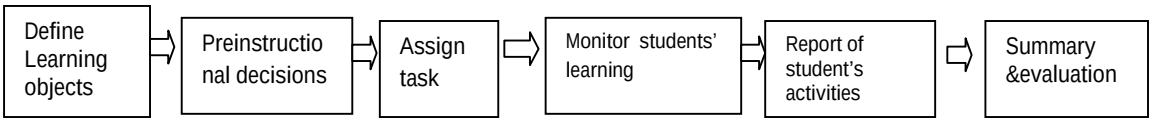

Figure 2: The cooperative learning process under the social network Site Facebook environment

Modification from Formal Cooperative Learning Groups from David W. Johnson (Source: Pedersen, Jon E., and Annette D. Digby. *Secondary schools and cooperative learning: Theories, models, and strategies*. Routledge, 2014: 41)

Cooperative learning groups may take place for several weeks to complete specific tasks and assignments (such as decision making or problem solving, writing a report, study some videos or audios, reading a chapter or reference book, learning pronunciation, or answering questions at the end of the chapter. Blended learning course in social network site Facebook for Speaking course operate as the following:

1. *Specify the objectives for the lesson*. In every speaking lesson there should be an specific learning objectives and strategies to be learned and a social skills objective specifying the interpersonal or small group skill to be used and mastered during the lesson.
2. *Make a number of preinstructional decisions*. A lecturer has to decide on the size of groups, the method of assigning students to groups, the roles students will be assigned, the materials needed to conduct the lesson, and the way the learning materials will be delivered.
3. *Explain the task and the positive interdependence*. A Lecture clearly defines the assignment, teaches the required concepts and strategies, specifies the positive interdependence and individual accountability, gives the criteria for success, and explains the expected speaking skills to be engaged in.
4. *Monitor students' learning and intervene within the groups to provide task assistance or to increase students' interpersonal and group skills*. A lecturer systematically observes and collects data on each group as it works. When it is needed, the Lectures intervenes to assist students in completing the task accurately and in working together effectively
5. *Report of Student's activities.* Student activity reports for learning in a group they should be reported to their Lecturers, it is as one of the instruments to determine their participation in the learning process and the achievement of each student in achieving the learning objectives. This report can be a video recording of their discussion on a topic, recording each student speaking
6. *Summary and evaluation.* each group can submit their summary orally and in writing, each student is given the opportunity to contribute to the deliver of reports on their learning difficulties on speaking. example is to say something, difficulties to convey something. at the end the session students can ask lecturer's advice to pronounce or say something correctly in English

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On the base of the above explanation clear that Harnessing Social Network Site Facebook for Cooperative Learning for Speaking Course in Blended Learning Environment should include the following elements.

1. Learning domain. The Lectures can help his students find right orientation and methods of study by setting learning goals. Furthermore, the Lectures can help them analyze the goal and confirm the learning theme in order to motivate their learning desire and promote their learning interest and enthusiasm. In this way, learning is becoming a need to students who are more likely to participate. This innovative teaching method makes the students shift from "being forced to study" to "being willing to learn ".
2. Students. As students are the main body of learning, the Lectures should fully know his students from different aspects such as their cognitive ability, psychological characteristics, cooperative learning ability with others and so on. In the network environment, students can act as different roles, such as individual learner, group member, cooperator in the group and other roles. each role will build up different abilities.
3. Social Network Site Facebook. Social Network Site Facebook is the software platform of the cooperative learning in the network environment which is based on the internet network and at same time it is equipped with the function of processing multimedia Input and Output
4. Tasks. Tasks are the core elements in cooperative learning. The Lectures gives the students relevant learning projects and specific learning tasks according to the learning target. The topics should be convenient for students' thinking from different angles. Only if the students know the learning tasks clearly, they can start learning activities efficiently.
5. Strategies. While implementing the cooperative learning in the network environment, we should choose proper strategies and techniques such as construction strategy and its teaching method which usually includes three teaching methods, that is, scaffolding instruction, situated or anchored instruction and Shorthand instruction.
6. Learning in group. Well-organized groups will be better than in the virtual learning environment. Well-organized group will directly affect the quality and the effectiveness of learning. It is also In a well-organized group, the learners have an organic relation. On the one hand, the learners should finish the task individually. The also should communicate with each other to accomplish the whole learning target. In group organization, the following factors should be considered: the same learning desire and similar individuality of the learners. The learning groups in the network environment include the following: discussion type, partnership type, cooperative type, competing type and role-play type and so on.
7. Lecturer. The Lectures should integrate all resources and design the learning activities during the cooperative learning. At the same time, he should not only play the role of transmitter of various kinds of information, but also the organizer of the students' study activities. Furthermore, he should guide and help the students timely and evaluate the learning process and learning outcomes.
8. Learning outcomes. The learning outcomes can be reports, papers and so on.

The Lectures should control this process and summarize the advantages and disadvantages, then give every student a proper evaluation. The evaluation of the learning outcomes will include the following four aspects: testing objectives, self-evaluation, evaluation of the group, and evaluation from the Lectures. In this model, we should evaluate not only the learning outcomes, but also the learning process

CONCLUSION

The cooperative learning in the Social Network Site Facebook environment will play an important role gradually among all the learning models for its distinct superiorities. In this learning *Social Network Site (Facebook)* served as a platform for cooperative *learning* online In respect of formal, enables student and lecturer to *involved online discussions,* keep their communication, constructing knowledge, enhancing student motivation, provide much possibilities to deliver learning materials (file, photos, picture, audio and audiovisual), it supports learning moves on 24 hour a day). in this learning model, the lectures and the students, the students and the students, the students and the groups will interact with each other and the students' abilities, behaviors, emotions and experiences will be enhanced greatly. With the development of network technology and the increase of students' demands on knowledge, single classroom teaching couldn't satisfy the students' needs. Therefore, developing the cooperative learning in the network environment is of profound significance in speaking course instruction model at higher education

REFERENCES

Alhajj, Reda, and Jon Rokne, eds. *Encyclopedia of social network analysis and mining*. (Ney York:Springer, 2014)..

Alhazmi, Abdulsalam Kaed, and Azizah Abdul Rahman. "Facebook in Higher Education: Social and Academic Purposes." *International Journal Of Computers & Technology* 12.3 (2013). 3300-3305

Boghian, Ioana. "Using Facebook in Teaching." *Social Media in Higher Education: Teaching in Web 2.0* (Pennsylvania, IGI Global:2013):

Chaka, Chaka. "Social Media as Technologies for Asynchronous Formal Writing and Synchronous Paragraph Writing in the South African Higher Education Contex."in Management Association, ed. *Social Media and Networking: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications*. (Pennsylvania, IGI Global:IGI Global, 2015)

Cheung, Simon KS, et al., eds. *Hybrid Learning: Innovation in Educational Practices: 8th International Conference, ICHL 2015, Wuhan, China, July 27-29, 2015, Proceedings*. Vol. 9167. (New York :Springer, 2015).

Cheung, Wing Sum, and Khe Foon Hew. "Design and evaluation of two blended learning approaches: Lessons learned." *Australasian Journal of Educational Technology* (2011).

ISBN 978-602-73030-1-0

George, Johnny Facebook to Facebook Encounters in Japan: How an Online Social Network Promotes Autonomous L2 Production." *New Media and Perennial Problems in Foreign Language Learning and Teaching*. (New York: Springer, 2015).

Harvey, Kerric, ed. *Encyclopedia of social media and politics*. (Sage Publications, 2013.

The Rise of K–12 Blended Learning (Innosight Institute; Michael B. Horn and Heather Staker; January 2011) www.innosightinstitute.org/innosight/wp-content/uploads/ 2011/01/The-Rise-of-K-12-Blended-Learning.pdf 2

Huang, Yueh-Min, et al. "Application of cloud technology, social networking sites and sensing technology to e-learning." *Reshaping learning*.(New York: Springer, 2013)

http://www.statista.com/statistics/304829/number-of-facebook-users-in-indonesia/ (accessed date, 29 November 2015)

Kabilan, Muhammad Kamarul, Norlida Ahmad, and Mohamad Jafre Zainol Abidin. "Facebook: An online environment for learning of English in institutions of higher education?." *The Internet and higher education* 13.4 (2010)

Kitsantas, Thomas, et al. "An Examination of Greek College Students' Perceptions of Positive and Negative Effects of Social Networking Use." *Social Networking and Education*. (New York:Springer, 2016)

Konijn, Elly A., et al., eds. *Mediated interpersonal communication*. (New York:Routledge, 2008).

Kumi-Yeboah, Alex, and Herbert Blankson. "Social Media and Use of Technology in Higher Education." *Handbook of Research on Education and Technology in a Changing Society* (Pennsylvania, IGI Global ,2014)

Lam, Jeanne. "Collaborative learning using social media tools in a blended learning course." *Hybrid Learning: Innovation in Educational Practices*.(NewYork: Springer, 2015)

Lam, Jeanne. "Collaborative learning using social media tools in a blended learning course." *International Conference on Hybrid Learning and Continuing Education*. (New York:Springer, 2015).

Lee, E. Bun. "Too Much Information Heavy Smartphone and Facebook Utilization by African American Young Adults." *Journal of Black Studies* 46.1 (2015): 44-61.

McLoughlin, Catherine, and Mark JW Lee. "The Three P's of Pedagogy for the Networked Society: Personalization, Participation, and Productivity." *International Journal of Teaching and Learning in Higher Education* 20.1 (2008). 10-27

Panitz, T.: Collaborative versus Cooperative Learning: A Comparison of the Two Concepts Which Will Help Us Understand the Underlying Nature of

Interactive Learning. Cooperative Learning and College Teaching 8(2), 13 (1999), available http://eric.ed.gov/?id=ED448443

Patrut, Monica, and Bogdan Patrut. "Social Media in Higher Education: Teaching in Web 2.0." (Pennsylvania:IGI Global, 2013)

Pedersen, Jon E., and Annette D. Digby. *Secondary schools and cooperative learning: Theories, models, and strategies*. (New York : Routledge, 2014.

Richey, Rita C., James D. Klein, and Monica W. Tracey. *The instructional design knowledge base: Theory, research, and practice*. (New York Routledge, 2010)

Rimor, Rikki, and Perla Arie. "“Visit to a Small Planet”: Achievements and Attitudes of High School Students towards Learning on Facebook–A Case Study." In Handbook of Research on Technology Tools for Real-World Skill Development (Pennsylvania, IGI Global,2016)

Rimor, Rikki, and Perla Arie. "“Visit to a Small Planet”: Achievements and Attitudes of High School Students towards Learning on Facebook–A Case Study.in Rosen, Yigel, Steve Ferrara, and Maryam Mosharraf. "*Handbook of Research on Technology Tools for Real-World Skill Developmen*t. (Pennsylvania,IGI Global (2016).

Shraim,Khitam "Pedagogical Innovation within Facebook: A Case Study in Tertiary Education in Palestine." *International Journal of Emerging Technologies in Learning (iJET)* 9.8 (2014)

Ventura, Rafael, and María José Quero. "Using Facebook in university teaching: A practical case study." *Procedia-Social and Behavioral Sciences* 83 (2013)

Wang, Haomin, ed. *Interactivity in E-Learning: Case Studies and Frameworks: Case Studies and Frameworks*. (Pennsylvania:IGI Global, 2011).

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THE IMPLEMENTATION OF QUALITY CONTROL IN IMPROVING THE QUALITY OF EDUCATION THROUGH E-LEARNING

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Abstract

The use of telecommunication technology for learning activities in college or in other educational is increasingly growing. One of the teaching methods that take advantage of information and communication technology-based learning method is e-learning. Learning methods based on e-learning is a process of self-learning is facilitated and supported through the utilization of information and communication technology or as part of the effort to the distribution of learning materials through the electronic media or Internet so that learners can access it at any time from all over the world. With the development of information technology and communication, it facilitates learning process, which is not only done with conventional method but also the method of distance learning and one of them is e-learning.

The use of learning methods based on e-learning this needs to be done (control quality control in order to maintain or improve the quality of education which is produced by several steps including: plan for unloanned (plans that have not yet been planned/make first standards), create checklists (Create a list of standard measurement parameters), master the process of quality control (make the guidelines control), use a fresh set of eyes to review your course (using the review from the other party) and maintained an issue log (the list make feedback).

Keywords: e-learning, quality control, distance learning, learning

INTRODUCTION

Information and Communication Technology (ICT) now is growing rapidly and its utilization in the field give impact and great influence and become the size of the progress of the individual, organization or state. One a the implementation of Information and Communication Technology that many used is implemented in the education sector, where the concept and teaching and learning mechanism (education) IT based become inevitable again. One of the concepts that are used in the field of education with the use of Information and Communication Technology is the concept of e-learning. With the concept of e-learning this brings the influence of the process of the transformation of the conventional education into digital form, both contents (contents) and his system. This time the concept of e-learning has many accepted by the world community, proven with the luster of the implementation of e-learning especially in the educational institution (schools, training and University). Some universities held electronic learning activities as a supplement to (additional) against subjects who served on regular basis in the classroom. But some other universities held e-learning as an alternative for students who because of one another and the absence of things attending face-to-face [9]. In relation to this, e-learning function as option (elect) for learners.

The tendency to develop e-learning as one of the alternative teaching in various institutions of education and training has increased in line with the development in the field of information and communication technology. In the area of

telecommunication infrastructure that support the implementation of e-learning does not only become the monopoly of large cities, but gradually have already started to be enjoyed by those in the cities in the district level. This means that the people in the district were able to use the internet facility.

The utilization of telecommunication technology for learning activities in college or in other educational institutions in Indonesia is also more conducive environment. With a conducive climate, college or other education institution can be more easily in running the learning process without having to face-to-face with educators through e-learning-based learning. But to maintain the quality or the quality of education that uses the learning process is based on the e-learning, then required a control which can maintain quality (quality control) or substandard from the education process so that the quality or the quality of education which is held by the method or based on e-learning is not defeated or even beyond the quality of learning which was held with the conventional method. With the advantages of an e-learning method in the process of learning that are able to carry out the learning process or learn anywhere and anytime, so that is expected to be able to improve the quality or the quality of education in the learning process.

LITERATURE REVIEW

Quality is a dynamic conditions related to the product, man, process environment that meet or exceed expectations client (Cheng, Weiyuan Zhang and Y L, 2012).

Quality Control is a process to review all the important elements involved in order to meet the requirements of the quality. Quality control is an important step that must be followed before providing education, training or learning anything for learners. A comprehensive reviews and systemic quality control (QC) and testing must be done to avoid the obvious error (Cheng, Weiyuan Zhang and Y L, 2012).

This is a Quality Control activities to monitor, evaluate and follow up to the specified quality requirements achieved (Product, process, service, inspection, testing, chaired the sampling and calibration) (Cheng, Weiyuan Zhang and Y L, 2012).

Quality control is the control systems integrated in the process and prevent the function of Atrial Septal Defect/non corformity output through rights from beginning or right from the beginning of the (Cheng, Weiyuan Zhang and Y L, 2012).

Quality Assurance is activities to monitor, evaluate and follow up the specified quality requirements can be reached (Product, process, service, inspection, testing, chaired the sampling and calibration).

Quality Assurance or guarantee the quality is all the actions planned, systematic and demonstrated to convince clinet that the specified requirements can be reached (Cheng, Weiyuan Zhang and Y L, 2012).

The focus of Quality Control and Quality Assurance

The focus of Quality Control (QC) The focus of this quality control is the fulfilment of quality requirements (product/service) based on that endorsed by the Quality Assurance. The capacity of Quality Control only as or as a controller texecutor/operator or as a quality controller in an organization.

The focus of the quality assurance (QA) The focus of the Quality assurance is a warner guarantee/beliefs regarding the fulfilment of quality requirements. Quality

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Assurance is more paper work and generally have the skills inspection is good and the writing skill procedure and familiar with engineering & industrial standards. Quality Assurance is a conceptor or quality guarantee against an organization, product, process, service, inspection, testing, chaired the sampling and calibration (Cheng, Weiyuan Zhang and Y L, 2012).

Definition of E-learning and Benefits

Definition of e-learning. E-learning is a process of self learning is facilitated and supported through the utilization of information and communication technology or as part of the effort to the distribution of learning materials through the electronic media or Internet so that learners can access it at any time from all over the world. E-Learning Model itself in general can be divided into 2 major categories namely static e-Learning and e-Learning dynamic. The most important thing that is required in building a e-Learning is the interaction between the user and the computer. E-learning has the philosophy as follows (Rusman, 2009).

E-learning is the delivery of communication information, education and training online.

E-Learning provides a set of tools that can enrich the value of conventional learning so that can answer the challenge the development of globalization.

E-learning does not replace conventional learning model in the classroom, but strengthen through content enrichment and the development of education technology.

The capacity of the students is very vary depending on the form of the contents and the way forwarding. The better the harmony of the content and the delivery of the learning style, then it will be better the capacity of students who in turn will give better results.

There are 3 (three) important as electronic learning activities requirements (e-learning), namely: (a) learning activities done through the usage of the network, (b) availability of learning service support that can be utilized by participants learn, for example the CD-ROM, or print materials, and (c) the availability of service support tutor who can help participants learn when experiencing difficulties.

In addition to the three conditions the can still be added other requirements such as the existence of: (a) institutions that hold/manage e-learning activities, (b) positive attitude from the learners and educators of computer technology and the internet, (c) learning system design that can be studied/known by each participant learn, (d) about the progress of the evaluation system or the development of the study participants learn, and (e) feedback mechanisms developed by the institution organizers. Thus in simple can be said that electronic learning (e-learning) is the learning activities that utilize the Internet network, LAN WAN) as delivery methods, interaction, and facilitation and supported by various forms of other learning services (Brown, Mary Daniels, 2000).

According to Horton, William Horton and Katheri (2003), what is meant by e-learning is all the utilization or the use of internet technology and the web to create the learning experience.

Darin E., (Hartley Hartley, 2001) stating that *e-Learning is a type of teaching and learning that* allows *teaching materials delivered to students using the Internet media, Intranet or other computer network media (*E. Hartley, Darin, 2001).

According to LearnFrame.Com in Glossary of e-Learning Terms (Glossary, 2001) states a broader definition that *eLearning is the education system that uses electronic application to support the teaching and learning with Internet media, computer network, or computer standalone (*LearnFrame.Com, 2001).

*According to Horton (2010), e-Learning environment for information and communication technology to play a role to support the learning process (*Horton, William Horton and Katherinm, 2003).

From the definition above, we can deduce that e-learning is: 1) The new teaching and learning methods that use media computer network and Internet; 2) The delivery of lesson materials (content) through electronic media. Automatically form of teaching materials also in the form of electronic (digital); and 3) The existence of the system and electronic applications that support the teaching and learning process.

The Benefits of e-learning. The Benefits of electronic learning according to Bates (1995) and Wulf (1996) consists of 4 things, (Bates, A. W., 1995): a) Increase the level of interaction between learners learning with the teacher or instructor (enhance interactivity); b) Allow the interaction of learning from anywhere and anytime (time and place flexibility); c) Reach the learners in a wide range (potential to reach a global audience); and d) Facilitating the storage and enhancement of learning materials (easy updating of content as well as archivable capabilities).

Types of e-learning

According to William Horton**,** e-learning differentiated into 5 types or categories namely (Horton, William Horton and Katherin, 2003):

Learner-Led E-Learning. This category is also known by the term Self-Directed E-Learning. Namely, E-learning that is designed to allow learner learn independently. The aim is to convey the lessons for the independent learner.

Instructor-Led E-Learning. The use of the internet technology/web to convey learning such as on conventional class. Requires learning technology synchronous (real time) such as video conference, audio chatting, bulletin boards and similar substances.

Facilitated E-Learning. A combination of Learner-Lead and Instructor-Led E-learning. Independent learning materials in a variety of form conveyed via the website (like audio, animation, video, text, in various specific formats) and interactive communication and collaborative also done via the website (such as the discussion forum, conferences at certain times, chatting).

Embedded E-Learning. Embedded e-Learning provide the effort to occur such as just in time training. Designed to provide immediate relief when someone wants to take over the skills, knowledge or other.

Telementoring and E-Coaching. The utilization of internet technology and the web to provide guidance and training remote. In this context, tool like tele-conference (video, audio computer), chatting, instant messaging, or phone used to guide and guide the development of the students in the acquisition of knowledge, skills or attitudes that must be he mastered. This type of more applied in the industry or the big companies in the global era like this.

Based on its use or delivery method of teaching materials in e-Learning, e-learning can be classified into four type or model like in the picture below (Sinaga, Novita Indriany, 2007): (see Figure 1 The Model and method of learning e-learning).

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Where; Quadrant 1: Live Synchronous; is the teaching that occurs in the dimensions of time and space simultaneously. This is why it is said as a direct sinkronous (LIVE). Learning settings such as this occurs in learning face-to-face with various strategies and teaching methods such as lectures, practice, discussion, demonstrations, and others.

Quadrant 2: Virtual Synchronous; is the teaching that occurs in the dimensions of the same time even though the dimension of the space is different. For example are the learners in some places can follow one and the same learning with the same educators through video conference. Or a learner discusses things with the teacher via handphone, etc.

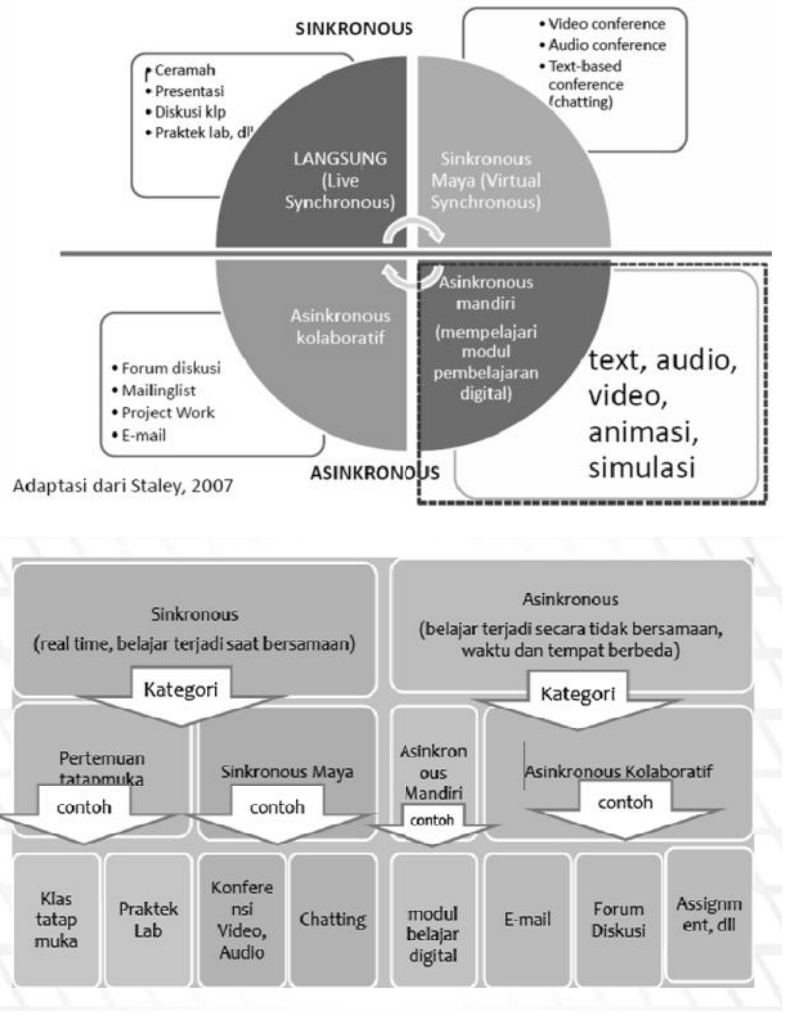

Figure 1: The Model and method of learning e-learning

Quadrant 3: Self-paced Asynchronous; learning that occurs in the dimension of the space and time different (anytime and anywhere) through learning media that specially designed to allow can be learned independently. In this case, the organizer of the e-learning, Educators/teachers say, provides various teaching materials or known by the term Learning Object, in various forms and formats such as pdf, exe, flv, HTML, pptx and others.

Quadrant 4: Asynchronous Collaborative; as self-paced asynchronous, teaching occur anytime and anywhere and school events involving more than one man. Example, a educators/teachers want to deepen the understanding of the learners about something the concept, then he threw the issue/issues into the discussion forum to get opinion from participants their students. Or on the contrary, a learners threw problems invoked to discussed with or receive input/response by other learners in a discussion forum.

The components and characteristics of e-learning

E-learning components. Components that make up e-Learning is: (Winarno, Edy and Utomo, Eko Priyo, 2010). a) The infrastructure of e-Learning: Infrastructure of e-Learning can be a personal computer (PC), the computer network, internet and multimedia equipment, b) System and Application e-Learning: software system booting the conventional teaching and learning process virtualization, c) E-Learning Content: Content and teaching materials that are on e-Learning system (Learning Management System). The content and teaching materials this can be in the form of Multimedia-based content (the content in the form of interactive multimedia) or text-based content (the content in the form of the text as on the ordinary lessons book).

Characteristics of e-learning. According to Rusman, et al., (2011: 264) e-learning has characteristic, among others (a) interactivity (interactivity), (b) independency (Independence); (c) accessibility (accessibility), (d) enrichment (enrichment) (Rusman, 2009).

The utilization of e-learning that good will promote a learning environment that is centered on the students (student of continuous learning), because e-learning requires learners to learn independently and to construct the knowledge itself. This is in accordance with the characteristics of the e-learning espoused by Riyana (2007) as follows: 1) Catch power students to the learning materials does not depend on the instructor/teachers because students construct their own knowledge through the ingredients of learning materials delivered through the web site interface; 2) The source of knowledge spread everywhere and can be easily accessible by every man. This is due to the nature of Internet media is global and can be accessed by anyone connected to it; 3) Teachers/educational institutions functioning as a mediator/mentor; and 4) Required a restructuring the education system policy, curriculum and management that can support the utilization of Information and Communication Technology for education optimally (Riyana, Cepi, 2007).

DISCUSSION

Successful completion of an e-learning system, depending on the diversity and sustainability of the appropriate content with the needs.

E-learning-based learning. E-learning as learning media electronic based, absolutely needs technology infrastructure to support the performance of the system.

The following is a supporting technology infrastructure e-learning based on the components of the former e-learning system such as in the Figure 2.

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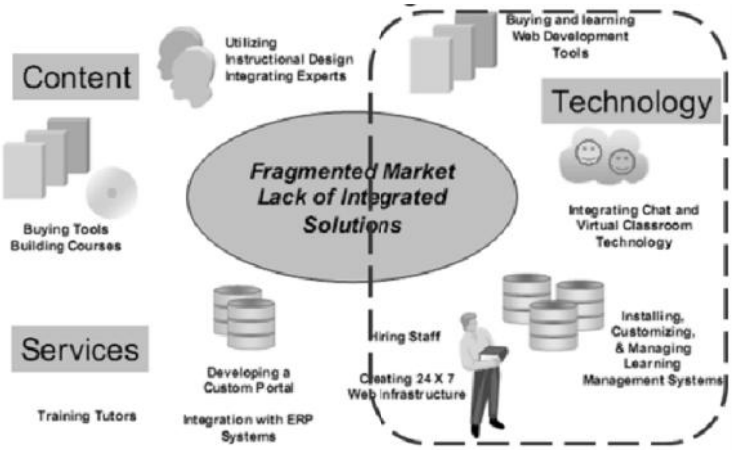

Figure 2: Supporting technology infrastructure e-learning

While the picture of the activity that was done in the process of learning using e-learning system is like the following image (see Figure 3).

The quality of education based on E-learning. As one of the education technology, then quality (quality) depends on the quality of the content and teaching process.

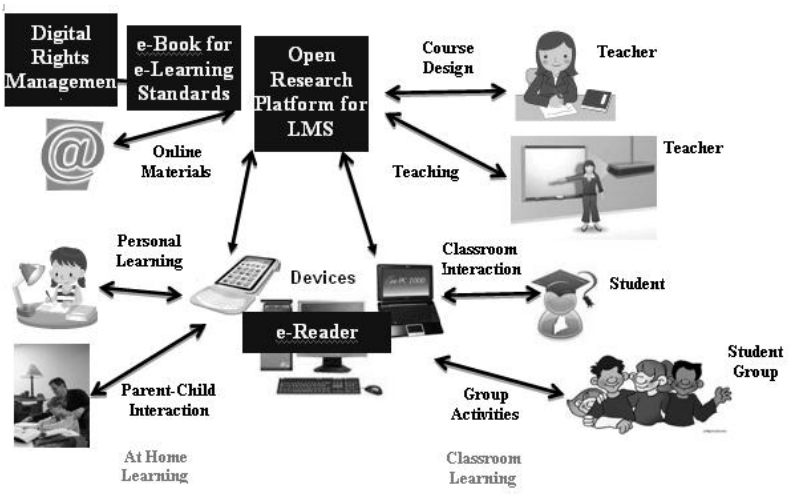

Figure 3: Learning activities based on e-learning

E-learning is one of the media distance education (Distance Learning), can be used as a solution to improve the quality or the quality of education, especially for the community that difficulty to follow the learning process with conventional and not be resistance factors and balancing unbridgeable gap the quality of education.

Some developed countries have been experiencing significant success in applying the distance learning (e-learning) with progress and success in this case: a) It can improve the equitable distribution of education, b) It can Improve learning

achievements, c) It can overcome shortages of education, d) It can increase efficiency.

The quality of education which was held with the learning process is based on the e-learning can be achieved by supported by your information technology, also by planning, administration, management and adequate economy. Besides, we also need to note the role of the facilitators, educators/educators, staff, how to implementation, how to adopt new technologies, facilities, costs, and the schedule as actualization of each activity.

In improving the quality of education which is held through the learning process is based on the e-learning, then one of the important thing is that the quality of educators/teacher, where educators/lecturers involved in the learning process e-learning must have the capability of understanding on the matter which conveys, understand the strategy effective e-learning, responsible on the subjects, the preparation of the lesson, making lesson module, screening support materials, presenting materials effective lessons, the determination of the interaction between learners, screening and evaluating tasks electronically. In addition, studio teachers need to be managed better than the normal classroom and educators/teacher must be able to use the equipment, among others use audio, video materials and computer network during the lesson.

The quality of education through the learning process is based on the e-learning will become more complete and high quality if educators/teacher-educators/lecturers involved continue to try to develop and improve the ability of new capabilities needed among others: a) Understand about e-learning, b) Identify characteristics of the learners, c) Design and develop interactive lecture materials in accordance with the development of new technology, d) Adapting the teaching strategies to convey the material electronically, e) Organize the material in a format that is easy to learn, f) Do training and practices in electronic, g) Involved in planning, development and decision-making, h) Evaluate the success of learning, should have and the perception of the participants that their students.

In addition to the ability of the educators/teacher, studio space educators/teachers and the ability to develop the ability or new insights that done by the educators/teachers also need to pay attention to the programs that need to be developed related to user needs especially learners among others: a) Related to the information about these units associated with the learning process: aims and objectives, syllabus, teaching method, schedule lectures, tasks, schedule educators/teacher, reference list or reading materials and faculty contact, b) Easy access to the source of references: diktat and note the courses materials presentation, (FAQ frequently ask question), the sources of reference for execution task, sites useful and articles in the journal of online, c) Communication in the classroom: discussion forum online, mailing list discussion boards that provide information (changes the schedule lectures, task information and the time limit for which it was collected

The implementation of Quality Control in e-learning. Quality Control in the process of learning e-learning can be performed with control over your information technology, planning, administration, learning standardize and other (Sinaga, Novita Indriany, 2007).

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The following are 5 Steps that can be done to maintain quality (quality control) from e-learning-based learning is as follows (see Figure 4).

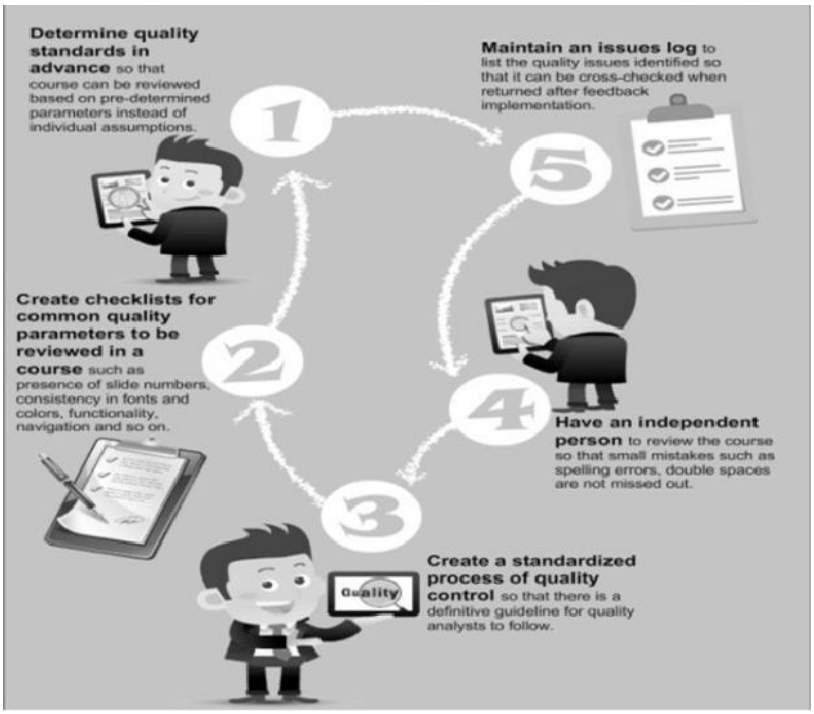

Figure 4: Learning Quality control of e-learning base

Determine quality standards in advance or plan for the unplanned. At this stage, plan what has not been planned, with determine the desired quality standard before the implementation of e-learning lessons, so that the learning process is based on the e-learning can be evaluated or reviewed based on the parameters that have been determined not the assumption of the opinion of the individual.

Create checklist for common quality parameters to be reviewed in a course. Create a list or checklist in the form of parameters which are used in measuring the desired quality such as the presence of the learners, a number of presentations in learning, consistency, font and colors, the navigation function and so on.

Create a standarized process of quality control or master the process of quality control. Create a standard (control) guidelines for quality control process so that it can be used to measure or assess the quality of rice-based learning e-learning.

Have an independent person or use a fresh set of eyes to review your course. Other people involved in the process of learning e-learning to participate do or help check the quality of the learning process so that the error can be minimized and quality can be controlled or improved.

Maintained an issue log. At this stage, done tracking all feedback and is an important step and more challenging to maintain.

CONCLUSION

The implementation of quality control in improving the quality of education through e-learning-based learning can be done with 5 stages, namely: 1) make a quality standard or planning what has not been planned, 2) make a list of the test of quality control as the standardization, efficiency, accuracy and others or make the parameter measurement, 3) create or use the appraisal guidelines quality, 4) review by involving the other party to participate and perform quality control, and 5) make a list of feedback for improvement.

REFERENCES

Bates, A. W. (1995). *Technology, Open Learning and Distance Education*. London: Routledge.

Brown, Mary Daniels. (2000). *Education World: Technology in the Classroom: Virtual High Schools, Part 1. Virtual High Schools: The Voices of Experience*.

Cheng, Weiyuan Zhang and Y L. (2012). *Quality Assurance in E-Learning: PDPP Evaluation Model and its Application*. The University of Hong Kong.

E.Hartley, Darin. (2001). *Selling E-learning. American: American Society for Training and Development*.

Horton, William Horton and Katherin. (2003). *E-learning tools and technologies: a cosrumer's guide trainers, class teachers, educators and instructional*. Adgi.

LearnFrame.Com. (2001). *Glossary of e-Learning Terms*. Glossary.

Riyana, Cepi. (2007). *Learning Media*. Bandung: CV. The Discourse Prima.

Rusman. (2009). *The utilization of the Internet for learning in Information Technology and communication in learning*. Bandung: Universitas Pendidikan Indonesia.

Sinaga, Novita Indriany. (2007). E-learning: concepts and Learning Strategies in Digital Era (Implementation in Higher Education). *Scientific journals Visionary*.

Staley, Laura. (2007). *Blende Learning Guide*. Juctin.

Winarno, Edy and Utomo, Eko Priyo. (2010). *8 Hours Menanklukkan Internet and Create own Website*. Yogyakarta: Publisher Elex Media Komputindo.

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HUMAN RESOURCE DEVELOPMENT PLANNING IN DISTANCE LEARNING SERVICES (CASE STUDY PANCASILA UNIVERSITY)

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Abstract

Planning services for distance learning there are several steps that must be done is to determine the E-Learning strategy plan and set up a Human Resources (HR) quality. To determine the effect of human resource development which consists of four aspects, among others; needs, planning, implementation and evaluation of the management improvement of distance learning services. Using regression analysis and path to determine the level of influence and the relationship between the independent variables with the dependent variable.

Keywords: human resource, e-learning

BACKGROUND

Human resources have an important role for the institution/company, since it has the talent, energy and creativity that are needed to move the company. Be aware that a human resources employee directly involved in running the company. However, existing resources would be meaningless if it is not managed properly. Therefore the company must give the maximum attention to the employees, in addition to welfare also concern in terms of quality of knowledge and skills, with expectations for the employee to compelled to provide all the capabilities as required by the company.

Pancasila University (UP) is one of the universities in Indonesia where is located in South Jakarta, which has estimated number of students is now more than 20,000 with 7 Faculty in it, consist of Faculty of Engineering, Law, Economics, Pharmacy, Psychology, Communication and Tourism. Problems from year to year is insufficient lab facilities, the number of vehicle parking and even classes both faculty and students. Number of competent lecturers in a very limited field plus it should teach in a parallel class. The solution of the above problems is to plan on-line lectures that distance learning (ODL) by utilizing Information and Communication Technology (ICT), especially the Internet as a medium of learning. The success of ODL must be supported by the management of the resources of all sectors.

To realize this idea in the form of real is not easy, it needs the capability or skills (skills) teachers and various policy stakeholders in the field of education.

ODL Planning at the Pancasila University is not optimal; this is due to the low level of awareness and knowledge of the bureaucracy and managers. In developing the human resources manager demanded professional in dealing with ODL, the university can plan the development of human resources with the following four aspects: (1) identify the need for development, (2) plan development, (3) the implementation of design development, (4) evaluate the design development, Then the problem can be formulated:

"How Human Resources Development in Planning Service Distance Learning Seen from Aspects of Supplies, Planning, Implementation and Evaluation?"

Therefore, the purpose of this study was to determine how human resource management in the management of distance learning from identification of needs, planning, implementation and evaluation.

STUDIES THEORY

In this literature review, the authors will briefly review the theories that became the theoretical foundation of this research.

Human Resources

Management is a process to achieve organizational goals. Management can as a set of logical and systematic knowledge as well as a personal creativity that accompanied a skill. Sadili Samsudin in his book Human Resource Management (2006: 18) cites the opinion of G. R. Terry in Principles of Management provides the following definitions:

> *"Management is a distinct process consisting of planning, organizing, actuating, and controlling performed to determine and accomplish stated objectives by the use of human being and other resources".*

According to Mary Parker Follett in his book states that management is the art of achieving something through someone else (*Management of is the art of getting things done though the other*)

From the definition of management above it can be seen that there are two terms that are given to experts on management jargon is an art that is personal creativity that accompanied a skill and some are on the definition of management as a science is a body of knowledge that is logical and systematic. So an organization to achieve its objectives will not be separated from management activities. Management wants to achieve organizational goals efficiently and effectively. The management functions include:

1. Planning (Planning) is the organization of activities to set goals and choose the best way to achieve that goal.
2. Organizing (Organizing and Staffing) is coordinating the activities of the resources, tasks, and authority among members of the organization so that organizational goals can be achieved efficiently and effectively.
3. Direction (Leading) is made of how these people work to achieve these goals.
4. Control (Controlling) aims to see whether the organization is going according to plan.

Human resource management (HRM) is one of the areas of general management covering aspects: planning, organizing, implementation and control. This process is contained in functions/areas of production, marketing, finance, and personnel. Because human resources have an important role in achieving the objectives of the company, the experience and research from the field of human resources systematically collected, hereinafter referred to human resources management. According Veithzal Rival (2008: 1) management terms have the meanings defined body of knowledge about how to manage (manage) the human resources. With proper management, the utilization of existing resources can be optimized to achieve the goals set by the company.

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In an effort to achieve the objectives of the company, the problems faced by the management of increasingly complex with the development of technology in this era of globalization. At present the management problems not only in raw materials or raw materials but also concerning the behavior of the employee or human resources. As with other resources, human resources are the inputs (input) is processed by the company and produce an output (output). Human resources are an asset for the company if it is managed will produce output performance for the company which would be profitable for the company. Human resources who do not have the expertise and skills required of companies if exercised, given the experience and given the motivation to develop it would be a very profitable asset for the company. Management of human resources is called the human resource management. In other words, human resource management is to develop employees in order to achieve the goals and objectives of individuals and organizations.

Sedarmayanti (2007: 13) says: "Human Resource Management (HRM) is the policy and practice of determining the human aspects or the human resources in management positions, including recruiting, filter, train, reward and appraisal". Be the main task of human resource management: managing employees as efficient and as effective as possible in order to obtain a productive employee and can provide the maximum benefit for the company. Specifically Sedarmayanti (2007: 13) revealed that human resource management aims to:

1. Enables organizations acquire and retain competent employees, trustworthy and highly motivated as required;
2. Increase and improve the capacity inherent in the human contribution, ability and skill;
3. Develop a working system with high performance that includes recruitment and selection procedures are thorough, and incentive compensation system that depends on the performance, management development and training activities related "business needs";
4. Develop management practices with a high commitment to realize that employees are stakeholder in the organization its worth helping and shaping the development of the climate of cooperation and mutual trust;
5. Creating a climate where productive and harmonious relationships can be maintained through the association between management and employees;
6. Develop environmental climate in which teamwork and flexibility can develop;
7. Help organizations balance and adapt the needs of stakeholders (owners, agencies or government representatives, management, employees, customers, suppliers and the wider community);
8. Ensure that the person judged or rewarded based on what they do and they accomplished;
9. Manage employees vary, taking into account differences in individual and group placement needs, work style and aspirations;
10. Ensure that the similarity is available to all;
11. Adopt an ethical approach to managing employees is based on concern for employees, justice and transport;
12. Maintain and improve physical and mental wellbeing of employees.

To achieve these objectives of human resource management should be acted upon several groups of activities which are all interconnected and linked, as was the case in the context of the organization include: human resource planning, compensation and benefits, health, safety and security, employee and labor relations. But in the era of globalization where technology has made the world borderless as the external environment becomes an important part that should be a consideration for all leaders in carrying out human resources activities including: legal, political, economic, social, cultural and technological. This is because the external environment seems to be an integral part of the organization itself.

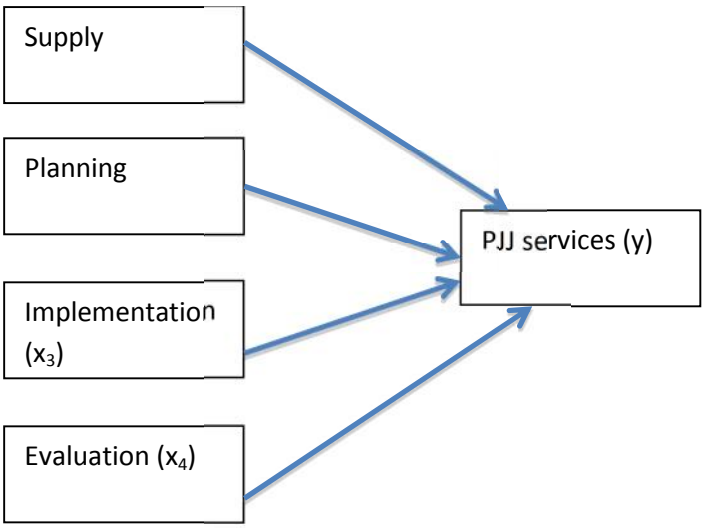
METHOD

Research with Pancasila University case study was a descriptive study and verification is to explore and understand an object of research by one or more variables (independent) and without comparing with other variables. Data obtained by the document directly to the lecturers/tutorials, students and staff of human resources that exist, then the results of this interview in the analysis and the conclusions drawn.

By looking at four aspects of human resource development, namely; needs, plan design, implementation and evaluation of the impact on the expected terms of optimizing the planning of distance learning services.

Based on the formula above problems, it can put forward the following hypothesis:

H1:	identification of the needs of human resources development affect the improved planning of ODL services
H2:	human resources development plan effect on increasing service planning PJJ
H3:	implementation of human resources development design effect on increasing service planning PJJ
H4:	evaluation design effect on increasing the human resource development planning PJJ services



Framework

Variables to be studied are the independent variable and the dependent variable. Independent variables are variables that influence the causes of changes in

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the dependent variable. All instruments of the four variables were developed from the study of theory, indicators, principal and research instruments embodied in the form of tests, questionnaires, field format, observation sheets, documentation and others.

Variable	Collecting Data Methods	Instrument	Score Scale	Type of Variable
Supply	Questionnaires	Questionnaires	Interval	Independent
Planning	Questionnaires	Questionnaires	Interval	Independent
Implementation Design	Questionnaires	Questionnaires	Interval	Independent
Evaluation	Questionnaires	Questionnaires	Interval	Independent
PJJ Services	Test & Questionnaires	Test & Questionnaires	Interval	Dependent

RESULTS AND DISCUSSION

In planning services distance learning (ODL) is not easy, a lot of things to do and be prepared. The steps are as follows:

1. Identifying needs is part of strategy PJJ services, on the part of this analysis, before deciding whether the institution will organize ODL program. Analysis based on the needs and objectives to be achieved, without prejudice to the capabilities and readiness of institutions, both in terms of human resources, skills, cost, infrastructure and culture.
2. Planning e-learning, skill of managers of distance learning prepared carefully. Skills are skills that must be prepared to manage the content, learning management skills, expertise to manage the implementation of ODL, the expertise to manage infrastructure.
3. Implementation of development, at this step starts from selecting technology to be used, which include: technology for ODL systems, technology for content creation, supporting technologies such as technologies for discussions, presentations and others. Also be disseminated to potential users use the system both in terms of academic and infrastructure.
4. Evaluation of the development, the step is evaluating the formulation of the need for both the content and the technology ODL system, which will use the SDM to evaluate and manage the technology, evaluate skill or financial review, evaluate back-up system in anticipation of damage or disruption to the system.

Based on the results of research, planning, distance learning services will be successful if the human resource development objectives are achieved and continuous in terms of management.

The test measures the analytical requirements are as follows: The independent variables X1, X2, X3 and X4 are translated into indicators to be measured. Indicators measuring the interval with a scale of 1 to 4, for example:

Score	Description
1	Disagree/Never
2	Less Agree /Rare
3	Agree/Often
4	Very Agree/Very Often

Scores for X1, X2, X3 and X4 each indicator is calculated based on the average scores for these variables. Each indicator Q is different in each variable X.

Table 1: Table of Human Resource Development

Development Indicators of Human Resources (X)	**Score**				**Total**	**Average**
	1	2	3	4		
Q_1						
Q_2						
Q_3						
Q_4						
Q_5						
:						
Total					……	……..

The dependent variable Y is translated into indicators to be measured. Indicators measuring the interval with a scale of 1 to 4

PJJ Services (Y)	**Score**				**Total**	**Average**
	1	2	3	4		
Q_1						
Q_2						
Q_3						
:						
etc						
Total					……	……..

After testing measures the analytical requirements, the next stage is hypothesis testing. In this study proposed several hypotheses to determine and analyze the influence of four variables partially and simultaneously. The main hypothesis is variable Y (Distance Learning Service) by variables X1, X2, X3 and X4 as a human resource development plan. From the calculations, the regression equation as follows:

$Y = A + BX1 + CX2 + DX3 + EX4$

The calculation result is expected to show that the absence of human resource development, distance learning services is not optimal.

CONCLUSIONS AND RECOMMENDATIONS

To implement distance learning services optimally need to do some changes in the work, namely the development of human resources that already exist. This is sothat the service can run well ODL appropriate purposes, and ensuring quality of service management ODL.

Measurement variables of human resource development in the planning of distance learning services which consists of identifying needs, planning, development, implementation and evaluation of design development design development is expected to significantly affect the variable distance learning services.

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Based on the results of the discussion and research of human resource development planning if the result is less or no effect on the variable distance learning services, should be enhanced and continue to make improvements in evaluation activities and conduct feedback. Activities this feedback can be a reference for both individual and team performances in the future.

REFERENCES

Beach, Lee Roy. (2007). *The human element: understanding and managing employee behaviour*.

Dias Laura Portolese. (2012). *Beginning Management of Human Resources v.1.0*. Retrieved from *http://2012books.lardbucket.org.*

Gary Dessler, Florida International University. (2012). *Human Resource Management, Thirteenth Edition*. Pearson.

Jeong Yeon Kim and Hangbae Chang. (2013). A Study on Performance Evaluation of the Human Resources Training Program. *International Journal of Smart Home: Vol. 7, No. 1, January, 2013.*

Josephat Stephen Itika. (2011). *Fundamentals of human resource management, Emerging experiences from Africa, African Studies Centre/University of Groningen/Mzumbe University African Public Administration and Management series, vol. 2.*

Muda Nurul Khikmawati. *Langkah-Langkah Mengimplementasikan E-Learning,* Pusat Pengembangan Dan Pemberdayaan Pendidik Dan Tenaga Kependidikan (PPPPTK) Matematika.

Priana Wirasaputra. (2006). Thesis: *Pengembangan Sumber Daya Manusia dalam Meningkatkan Layanan Pengelolaan Sampah (Studi pada PD Kebersihan Kota Bandung).*

T. Hani Handoko, Dosen Fakultas Ekonomi Universitas Gajah Mada. (1987). *Manajemen, edisi 2.*

Tim Dosen Mata Kuliah Manajemen Sumber Daya Manusia Program Studi Teknik Industri. (2009). Buku Ajar: *Manajemen Sumber Daya Manusia*.

DISTANCE LEARNING BASED E-LEARNING OPERATIONAL MODEL FOR STUDENTS NON-REGULAR (CASE STUDY ON STMIK BANJARBARU)

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Abstract

The frequency of in-person meetings of non-regular college student can't be met according minimum standards which have been established, as a result often can't follow the course because it is outside the region, and adversely affects the Academic Performance Index non-regular students when compared with Regular student. This article offers a model for e-Learning technologies with distance learning system to support distance learning system for improving student academic achievement of non-regular. The process for conducting e-Learning utilizes a Learning Management System (LMS), which serves to regulate governance organized learning in the model of e-Learning, to ensure control and management system can run well. The results of the exposure draft in the article indicated to stakeholders that embed the e-Learning in higher education institutions pose a number of challenges for the quality of its management, so that if the implementation of online learning is targeted to be successful, then the higher education institutions should be able to manage the change process through discussion agreed, support strategies right, then make it happen through a joint commitment.

Keywords: distance learning, e-learning, academic achievement

INTRODUCTION

The importance of a college education is not only an impact on improving academic knowledge, but can give some other effects such as the formation of personality, analytical capabilities and skills in problem solving, self-confidence, that all it can to support the improvement of a career ladder. No wonder so many students that in addition to a student, also the company's status as an employee or employee areas of government.

Common obstacles faced by students who are also status as formal workers in the following process in higher education is the availability of time to follow the schedule of lectures on a regular basis. Some colleges provide opportunities to students having the status of the formal workers to take the classes through the non-regular education, for example by following the learning process every weekend. However, the application of the system of lectures were held on weekends for non-regular students have not been able to produce an adequate academic achievement compared to students who attend the lecture on a regular basis. Based on initial studies conducted at several strata one on universities who organizes a weekend lecture system for non-regular students, Academic Performance Index average non-regular students only around 2.25, far below the Academic Performance Index Average grade regular is 3.45. This is thought to be caused by several things: (1) students who frequent the formal status of workers to travel out of the area at the weekend so often can't take the classes face to face. (2) Some faculty lecturer on the

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contrary often spend time on weekends for a holiday weekend, so the number of face to face lectures also can't be held in accordance with the minimum standards required. This contradicts the results of research conducted by Sjukur (2012) that the frequency of meetings held face to face a positive influence on an improved understanding of the learning material for students learning, which have an impact on academic achievement. Several solutions have been adopted by the academic colleges for teaching materials can be delivered to non-regular students who can't meet the minimum number of face to face meetings lectures, for example by delivering teaching materials directly to the students to learn independently. However, this method has not been able to improve students' achievement significantly.

Media in the perspective of education is a strategic instrument in determining the success of the learning process, because its existence can directly provide its own dynamics on learners. According to Hamalik (1989), instructional media are tools, methods, and techniques used in order to further streamline the communication and interaction between teachers and students in the process of education and teaching in schools. Shalahudin (1986) propose that the learning media is an effective auxiliary tool that can be used by teachers to achieve the desired learning objectives. One model of learning that the popular media is media electronic learning e-Learning (Electronic Learning).

The learning process based e-Learning is no longer focused on a central educational institutions such as colleges, schools, courses, and other training centers, but have changed the learning process without coming to the meeting place where the learning process implemented. Teaching and learning process continue to spread directed towards more flexible with respect to time and place. The time and place is no longer an obstacle in organizing learning activities.

Several studies on the use of e-Learning to improve the effectiveness and efficiency of the learning process:

Research conducted by Susanti & Sholeh (2008) regarding the development of e-learning applications. The study concluded that the e-Learning system is able to support the process of teaching and learning activities. Through e-Learning, the learning process can be done quickly and easily, and can improve the efficiency and effectiveness of time and cost. Besides the number of students that can be captured in a class of it is limited because it can be reached by all users of the places that can access e-learning via Web-based communications network.

Darmayanti, et al., (2007) proposed the e-Learning in Distance Education. The study examines the emerging new paradigm associated with the learning process is no longer describes a meeting face to face in the classroom. The study concluded that the e-Learning, learning can take place wherever and whenever desired also.

Wijaya (2012) proposed the development of e-Learning Learning Model with a Web-based e-Pedagogy Principles to Improve Learning Outcomes. Results of testing the effectiveness of the model shows that the learning model of e-Learning web-based e-pedagogy principles can improve students' ability to understand the subject matter better evidenced by the improvement of learning outcomes achieved.

This article offers a model for e-Learning technology with Distance Learning system to support distance learning system for improving student academic achievement of non-regular.

LITERATURE REVIEW

Management of Operations

Management of Operations (MO) is a science that can be applied to various types of business such as hospitals, colleges, garment manufacturing, and others. This type of business as mentioned produces a product which can be either goods or services, which were for activities production process effectively and efficiently requires a wide range of concepts, tools and ways to manage its operations.

when the management strategy talked about formulating, implementing, and evaluating the operations management talk about business management (planning, organizing, actuating, controlling) the optimal use of resources/factors of production (man, material, machine, method, management Operation, market) in the process of transformation of raw materials into products/services. According to Ishak (2007), operations management is closely related to the management of inputs into output in accordance with a planned strategy to achieve the desired result, for example, in a university lecturer, equipment, and staff is input, the output is a student educated by utilizing existing facilities and serving the community.

Behavioristic Learning theory

Learning according to behavioristic theory that changes in behavior as a result of the interaction between stimulus and response. Stimulus and response are two important entities that can be observed and measured the changes so that they require reinforcement both positive and negative. Besides stimulus and response have a relationship that is temporary so that the necessary repetition of the stimulus.

Cognitive Learning Theory

Learning is an internal process that involves memory, thought, reflection, abstraction, motivation, and Meta cognitive as a skeleton. Knowledge in memory will be meaningful if it is organized hierarchically. Hierarchically organizing is crucial in expediting the process of achieving a balance between knowledge in cognitive structure with new phenomena through adaptation. Organizing knowledge can be divided according to age groups. Based upon this, the arrangement of material content and learning resources in the E-learning should be presented in a systematic manner. The process of knowledge organization assisted premises will facilitate the strengthening of the context of cognitive processes in processing and receiving information.

Constructivism learning theory

According to the theory of constructivism students put their knowledge through his own experience. The statement explained that the learning situation becomes more widespread. Students can build knowledge desired. Learning is an active process when students construct new ideas or concepts on the basis of their experience

Electronic Learning (e-Learning)

E-Learning, which is based on Information and Communication Technology (ICT) is often associated with distance education (distance learning). Through the use of ICT, especially the Internet technology is expected to geographical and time constraints difference in teaching and learning activities can be solved. Jenkins & Hanson (2003) defines e-Learning as a learning process that is facilitated and

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supported by the use of information and communication technology. The term of distance education is Online Learning, Mohamed Ally mentions that e-Learning is the use of the Internet to access learning materials; interact with the content, faculty, and other learners; and support during the learning process, acquire knowledge, constructing meaning (meaning) individually, and evolve based on experience learning (Ally, 2004).

There are several forms of learning systems via the Internet (based e-Learning) are worthy of consideration as the basis for the development of learning systems by utilizing the internet, namely:

1. Web Course, is the use of the Internet for learning purposes, in which all learning materials, discussion, consultation, assignments, exercises and exams completely delivered over the internet. Between students and professors completely separated, but the relationship or communication may be made at any time. More communication is done asynchronous (delayed) rather than synchronously (immediately returned). This course web forms do not require the presence of well-face activities for learning purposes as well as evaluation and test, because all of the learning process is done entirely through the use of internet facilities such as e-mail, chat rooms, bulletin boards and online conferencing;
2. Web Centric Course, where the majority of learning materials, discussion, consultation, assignments, and training delivered over the internet, while the exam and some consultations, discussions and exercises conducted face to face. Although the learning process is mostly done with a face that is usually in the form of a tutorial, but the percentage of the face is still far smaller than the percentage of the learning process through the Internet.

DISCUSSION

The implementation process of e-Learning requires two (2) main components of Content (teaching materials) and the Learning Management System (LMS). Both of these components will be synergy, where the LMS will provide features as befits learning required in a conventional learning environment, being content is the material he taught himself. LMS field focused more on the environmental aspects of learning and instructional teacher or facilitator. While the content associated with various touches such as how content is presented, how the level of difficulty, and how one learner to learn, how to evaluate the understanding, and so forth. In a scenario of learning, students can make the learning process independently or do collaboratively. In collaborative learning methods, the use of communication facilities needed to support the interaction between all the learning processes. This article will discuss the use of discussion forums in the formation of knowledge (knowledge building) in online learning, in addition to other basic activities such as assignments and evaluation.

Development of Instructional Design Model

Instructional development according AECT (1977) is a systematic approach in designing, producing, evaluate, and use complete learning system, including all the appropriate components and a management scheme for use to all. Dick & Carrey (1986) describes the development model of learning with a systems approach to instructional design as well as in Figure 1.

Development model of learning by Dick and Carrey, learning development activities is the reference in this article includes: identifying target, determine the learning objectives, define learning strategies, content development, and determine the evaluation of learning.

Model Product Development/Learning Management System (LMS)

The process of implementation of e-Learning, require a Learning Management System (LMS), which serves to regulate governance organized learning in the model of e-Learning. LMS is often also known as CMS (Course Management System), CMS generally built web-based, which will run on a web server and can be accessed by participants via a web browser (web client). Server placed on campus, which can be accessed from anywhere by students, by making use of the internet connection. Stone at al. (2002) proposed a model in e-Learning LMS that has involved the integration of several components of other e-learning, as shown in Figure 2.

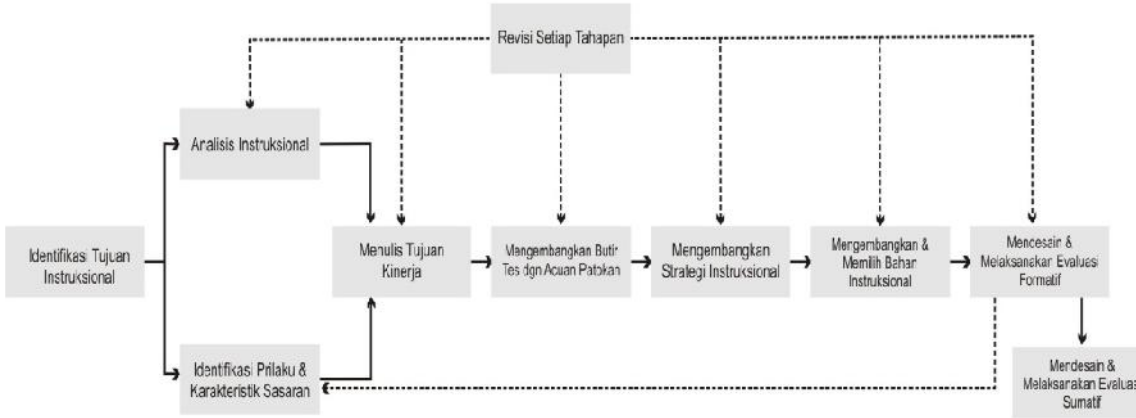

Figure 1: Model development learning systems approach for instructional design by Dick and Carrey (1986)

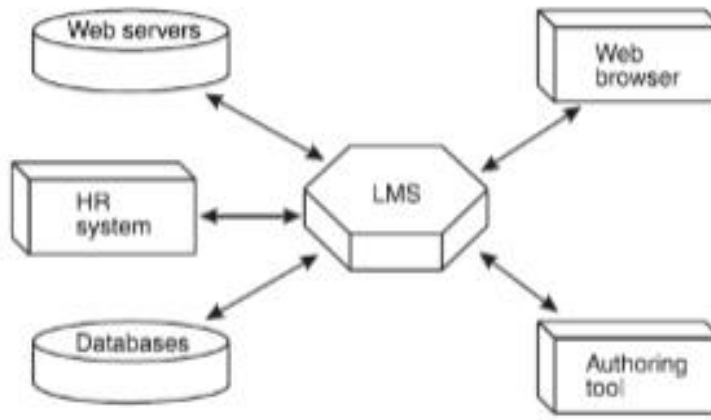

Figure 2: Integration LMS

In the e-Learning content development, according to Morrison & Horton (2003), should refer to the hierarchy of content that is based on the concept of the

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curriculum. On top of this curriculum is then developed learning activities (golf), teaching materials (modules), the object of learning (learning object) and the object of media will be used (media).

A CMS provides a tool for educators to manage access control, so that only registered participants can access and view it. In addition to providing control, various CMS also provides tools that make learning more effective and efficient, such as providing services to facilitate the upload and share teaching materials, online discussions, chat, quizzes implementation, surveys, reports (report) and so on. This is consistent with the expression Cole & Jason (2005) that, in general, functions that must be contained in an LMS/CMS, among others: (1) Uploading and sharing materials; (2) Forums and chats; (3) Quizzes and surveys; (4) Gathering and reviewing assignments; and (5) Recording grades.

CONCLUSION AND FUTURE STUDY

Development of a model Learning Management System (LMS) for the needs of the distance learning system at STMIK Banjarbaru, it can be concluded the following: (1) LMS is a system developed to answer the needs of the management of e-Learning, to ensure the administration of the distance learning system for non-regular students can run effectively and efficiently; (2) Development of LMS on STMIK Banjarbaru aims to ensure the control and management of distance learning systems for non-regular class, but not limited to use in the regular classroom.

The concept in this article demonstrates that the stakeholders are prepared to be familiar with the e-Learning. Embedding e-Learning in higher education institutions pose a number of challenges for the quality of its management, so that if the implementation of targeted online learning is successful, then the higher education institutions should be able to manage the change process through discussion agreed, support the right strategy, and then make it happen through a joint commitment.

REFERENCES

AECT. (1997). *The Definition of Educational Technology*. Washington D.C.: Association for Educational Communication and Technology.

Ally, M. (2004). *Foundations of Educational Theory for Online Learning. Terry Anderson & Fathi Elloumi, eds.* ISBN: 0-919737-59-5. Canada: Athabasca University.

Cole & Jason. (2005). *Using Moodle*. USA: O'Reilly.

Damayanti, T., Setiani, M. Y., & Oetojo, B. (2007). E-Learning Pada Pendidikan Jarak Jauh: Konsep Yang Mengubah Metode Pembelajaran Di PerguruanTinggi Di Indonesia. *Jurnal Pendidikan Terbuka dan Jarak Jauh: Vol. 8, No. 2* (pp. 99-113).

Dick, W. & Carey, L. (1990). *The Systematic Design of Instruction (3rd Ed.).* Glecview, Illinois: Scott, Foresman and Company.

Hamalik, O. (1989). *Media Pendidikan*. Bandung: Citra Aditya.

Ishak. (2007). *Pengantar Manajemen Operasi (*E-Learning*)*. Medan: *Library of NorthSumatera*.

Jenkins, M. & Hanson, J. (2003*). e-Learning Series: A guide for Senior Managers.* United Kingdom: Learning and Teaching Support Network (LTSN) Generic Centre.

Morrison & Hortono. (2003). *E-Learning Strategies: How to Get Implementation and Delivery Right First Time*. Chichester, England: Wiley & Sons. Inc.

Shalahuddin, M. (1986). *Media Pendidikan Agama*. Bandung: Bina Islam.

Sjukur, S. B. (2012). Pengaruh Blended Learning Terhadap Motivasi Belajar dan Hasil Belajar Siswa Tingkat SMK. *JurnalVokasi: Vol.2, No. 3* (pp. 368-378).

Stone, David, E., Koskinen and Canstance, L. (2002). *Planning and Design for High Tech Web-Based Training*. Boston: Artech House.

Susanti, E. & Sholeh, M. (2008). Rancang Bangun Aplikasi E-Learning. *Jurnal Teknologi: Vol. 1, No. 1* (pp. 53-57).

Wijaya, M. (2012). Pengembangan Model Pembelajaran e-Learning Berbasis Web dengan Prinsip e-Pedagogy dalam Meningkatkan Hasil Belajar. *Jurnal Pendidikan Penabur: Vol. 11, No. 19* (pp. 20-37).

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MOBILE LEARNING IN TEACHER EDUCATION PROGRAM

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Abstract

Mobile learning is a learning that is not related to time, which can be used to support the teacher education program at the Teacher Training and Education Institution (LPTK) in Indonesia. Mobile learning is an alternative that can be considered as a part of the curriculum of teacher education, or an integrated program of education programs of prospective teachers in Indonesia, so that prospective teachers produced by LPTK can be the generation in accordance with the demands of the times. As a reference for the application of the concept of mobile learning in the teacher education program, blended learning is a model that is used. To get a deeper picture of mobile learning and its application, this paper will discuss the trends and issues of mobile learning related to the teacher education program. To present this paper, the writer uses a descriptive method.

Keywords: Mobile learning, teachers, curriculum.

INTRODUCTION

The changes brought by the power of technology, economics, and culture in the early twenty-first century are very fast. These changes mostly origin in developed countries. However, the effect is also seen in developing countries. Societies throughout the world are rapidly changing in fundamental ways, especially with regard to the availability and easy way to access to information technology and digital communication. It is inevitable that the students/university students and teachers/lecturers in their daily life cannot be separated from the use of technology, both for the purposes of everyday communication and education.

These great advances in information technology have not been used by teachers/lecturers for the sake of teaching as it is seen that teachers and lecturers in instructional practices in the classroom still dominantly use traditional ways, for example whiteboard or just power point, in the their application of presentation or lectures. It is no more just a shift function of blackboard/whiteboard to screen as presentation. Such things are just running the minimal functions of the technology itself, so that the messages to be conveyed to students do not meet the good criteria of a maximum information technology. Since the true function of a good technology is as a various channel to receive information for students, for example through hearing, sight, touch, and the combinations of all. The students are still considered as passive audiences with almost no interaction as they are not actively involved in the instructional process. Consequently, educational institutions should prepare their students to face the future that is difficult to predict. As we know, prospective teachers working in education need to have experience with integrated learning technology or formal development of digital literacy in education institutions.

Digital literacy can provide precise ability to access, synthesize, and utilize sources of analog and digital information to achieve teaching objectives set. Digital literacy includes the ability to communicate and collaborate effectively with the help

of modern technologies and methodologies fit generations to come. Digital literacy should be understood as a set of skills that are necessary to expand beyond traditional teacher pedagogical abilities. Digital literacy cannot be fully obtained in isolation while preparing traditional written report, but was obtained through a transformative process through the utilization of contextual authentic and modern teaching aids. Having no experience cannot be replaced by knowledge as experience can develop and enhance digital literacy skills or other kinds of literacy among prospective teachers. At present, the use of technology by both teachers and students can be portable and wireless devices. Electronic devices that can access internet content and allow various methods of digital collaboration in different places are the future of education.

LITERATURE REVIEW

Mobile Learning in Teacher Education Program

Mobile Learning

The use of mobile devices in learning is generally called learning as a mobile (m-learning). Many other keywords like learning everywhere, learn performance grip, learn assisted hypermedia, and e-learning has evolved towards the concept and function of mobile technology (Rossing, Miller, Cecil, & Stamper, 2012). Kadirire (2009) defines m-learning as a form of e-learning, which can take place anytime, anywhere with the help of mobile communication devices. Brown (2010) identifies mobile learning as "an extension of e-learning". Quinn (2000) define mobile learning as "the intersection of mobile computing and e-learning (Learning electronics): sources accessible wherever you are, powerful search capabilities, rich interaction, strong support for effective learning, and assessment of performance based", However Vavoula, Lefrere, O'Malley, and Sharples (2004) defines it as "Whatever learning happens when students are not fixed, predetermined locations, or learning happens when students take advantage of the learning opportunities offered by mobile technologies".

On the other hand, some authors put the emphasis on mobile devices and user mobility. For example, Traxler (2005) offers a definition as "provision of education in which a single technology or a dominant is a handheld device that specifically links the provision of education for handheld devices. Orr (2010) suggests merging recording mobile, imaging, or communication device "as part of mobile learning". Wang, Wiesemes, and Gibbons (2012) only define it as, "learning through mobile devices". According to Yousef (2007), "Mobile learning is defined as the provision of education and training on mobile devices.

The Use of Mobile Learning in Teacher Education Program

Desktop computers require a fixed location and resources. This mobile device has many unique characteristics, including portability, connectivity, comfort, utility, proximity, accessibility, individuality, and interactivity. Due to its characteristics and opportunities, there are many advantages of using mobile technology, such as the freedom to learn with the flexibility, low cost, and on-time application (Alzaza & Zulkifli, 2003), the increased authentic experience and learning situation control ability, the improved guidance availability, ease of use in a learning situation support, the quick digital learning material and copyright issue production, and the learning

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flexibility. Additionally, Alnuaim, et al. (2009) also added that personalization is one of the strengths of mobile learning.

The main goal of mobile learning (Cressence and Lee, 2011) is “to give students the ability to assimilate learning anywhere and anytime." Besides, (Yousef 2007) the benefits of mobile learning that are not less important are the ability to bring many benefits to experience distance learning as follows: (1) the provision of course content for students outside the campus, (2) provision of feedback to students outside the campus, (3) provision of supporting services for students who are off campus, (4) a link to the www and other resources, (5) interactivity among the students, and (6) interactivity among the students, faculty, and institutions. All those reasons are the basic principles in educational technology that the media used in the learning process must necessarily that helps people teach and learn and can improve performance of teachers to teach and improve the achievement of students. Beside the above advantages, there are also a number of weaknesses of this device, i.e. the limited ability of the processor, limited memory capacity, small display screen, short lasting power (battery) and slow access.

The Potential Use of Mobile Learning in Teacher Education Program

Mobile learning, as a new learning strategy, holds the potential for possible use by the faculty. There are important factors that should be considered in applying m learning. Particularly, the use of m-learning should encourage not only comfort, but also a requirement that this is the most appropriate and strategic way to deliver material or help students focus their thinking about some of the content or application. Vaughan (2013), conducting research at Mount Royal University, has found that the mobile learning can be applied when the students in the university are ready. It means the students in general already have the mobile devices and they are already using these devices not only as a means of communication but also to an exploration to the various learning resources on the Internet.

What is about our LPTK readiness? Is there any Indonesian LPTK that has integrated the mobile device that can be used in the learning process? To apply this program, LPTK must have the equipment itself, at least a mini laboratory "mobile learning." The goal is when there is a simulation in the classroom, the students and faculty can do the test, then they get to experience it together, as well as synchronization with the equipment. However, the ideal concept will be all classes involved in the learning process must have a mobile device, integrated with the existing systems in a LPTK. What if LPTK does not have the supporting tools for mobile learning applying this? It goes without saying that it will be not possible. It is as if we learnt to drive a car by only knowing the procedure how to bring the car, or invited to fantasize controlling an airplane only through wonderful stories.

Besides the above requirements, LPTK should also have their own web, aiming to provide unrestricted access to students. Students who cannot attend meetings can access learning materials wherever they are as long as they are connected to the Internet. There are some programs that can be ways of using mobile devices in the prospective teacher education program, namely: (a) planning and preparation program, (b) student achievement assessment, (c) class learning, and (d) students and lecturers activity file storage.

CONCLUSION

Technology has revolutionized every component of our culture and society. Now, it revolutionized the teacher education around the world. Revolution is happening at a rapid pace. It is important that teachers can be prepared not only to use current technology but should be able to handle systematically and analytically the technology coming up and growing thereafter. The current technology needs to be integrated on the technology that will come to achieve the best synergy in the quality of pedagogy. Educators must be prepared to work on the future development of these.

A new teacher education system must be developed to define itself in the modern age spectrum. Universities must prepare prospective teachers are up to date with technology and methodology, something that is inevitable. Another important aspect is that they need to develop their competence to teach and work with other experienced teachers.

REFERENCES

Alnuaim, A., Caleb-Solly, P., & Perry, C. (2009). A mobile location-based situated learning framework for supporting critical thinking: A requirements analysis study. In *Proceedings of IADIS International Conference on Cognition and Exploratory Learning in Digital Age* (pp.163-170). IADIS.

Alzaza, N. S., & Zulkifli, A. N. (2003). *Based Mobile Library Loan Service (MBLLS). In Proceedings of the Rural ICT Development Conference.* Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download? Doi = 10.1.1.97.7749 & rep = re p1 & type = pdf.

Brown, M., & Diaz, V. (2010). *Mobile learning: Context and prospects: A report on the ELI focus session. EDUCAUSE Learning Initiative.* Retrieved from http://net.educause. edu/ir/library/pdf/ELI3022.pdf.

Kadirire, J. (2009). Mobile Learning DeMystified. In Guy R. (Ed.), *The Evolution of the Mobile Teaching and Learning. California*. USA: Informing Science Press.

Norman Vaughan, (2013). Investigating the role of mobile devices in a blended pre-service teacher education programs. *The Canadian Journal of Higher Education Revue Canadienne d'enseignement supérieur: Vol. 43, No. 3.*

Orr, G. (2010). A review of the literature in mobile learning: affordances and constraints. In *Proceedings of the 6th IEEE International Conference on Wireless, Mobile, and Ubiquitous Technologies in Education* (pp. 107-11).Kaohsiung, Taiwan: IEEE Computer Society Press.

Quinn, C. (2000). *M-learning: Mobile, wireless, in-yourpocket learning. Linezine: Learning in the new economy*. Retrieved from http://www.linezine.com/2.1/features/cqmmwiyp.htm.

Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The future of higher education? Student perceptions on learning with mobile tablets. *Journal of the Scholarship of Teaching and Learning: Vol. 12, No. 2* (pp. 1-26).

ISBN 978-602-73030-1-0

Traxler, J. (2005). *Defining mobile learning. IADIS International Conference Mobile Learning, 2005.* Retrieved from http://www.marcosbarros.com.br/ead/file.php/10/200506C018.pdf.

Vavoula, G. N., Lefrere, P. O'Malley, C., & Sharples, M. (2004). *Producing guidelines for learning, teaching and tutoring in a mobile environment*. Paper presented at the 2nd IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE). Taoyuan, Taiwan.

Wang, R., Wiesemes, R., & Gibbons, C. (2012). Developing fluency through ubiquitous mobile digital devices: Findings from a small-scale study. *Computers & Education: Vol. 58, No. 1* (pp. 570-578). doi: 10.1016/j.compedu.2011.04.013.

Yousef, M. I. (2007). Effectiveness of mobile learning in distance education. *Turkish Online Journal of Distance Education: Vol. 8, No. 4* (pp. 114-124).

THE IMPLEMENTATION OF EDUCATIONAL TECHNOLOGY IN IKPIA PERBANAS JAKARTA
(THE IMPLEMENTATION OF DISTANCE LEARNING/E-LEARNING READINESS)

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Abstract

After standing for more than 40 years, IKPIA PERBANAS Jakarta continuously still makes breakthroughs which is in 2009 has created a new vision to be amongst five (5) leading universities in Asia in 2019. One of the measures is to develop learning strategies. The Development of learning strategies undertaken to find the best way of learning process that can improve the performance of students and graduates that also have high competitiveness. Currently the media and the results of learning evaluation have been using Information and Communication Technology (ICT) with online internet-based system. For the lesson plan and the outcomes of the study have been using online applications (star apps), but for the learning process is not optimal yet because it is still at the stage of using the internet facility merely for tasks and sharing teaching materials via e-mail, chat, forums, groups, not for the application of e-learning system completely.

Keywords: learning strategies, achievements of students and graduates, learning evaluation, information and communication technology, online system, internet, e-learning.

INTRODUCTION

Along with the advance of global technology, all aspects of life including economy, politic, culture, art and even education have all been affected. Education should make a good innovation to improve its quality and its school. Not only the innovation in the form of curriculum, infrastructure, but also other aspects in general by using information technology of education. Such method can transform the conventional teaching to be non-conventional one.

Therefore, IKPIA PERBANAS should respond this resourceful technology accordingly and discreetly. The process of teaching& learning in the classroom should also use a technology that is effective and efficient. However, the presence of lecturer still needs to exist in the classroom as a designer, motivator and a guidance that should be respected.

Information communication technology (ICT) is the essence of being innovative school because it is expected that the presence of ICT can foster the quality of learning, productivity, efficiency and access, motivation to study, professional development/staff development and individual development. Those five mentioned are the hopes and needs that become the reason why ICT should be implemented in IKPIA PERBANAS.

The plan to use e-learning system completely is in the line with the vision of IKPIA PERBANAS, that is, to become one of the leading universities in ASIA and to support the government in cooperation with the Southeast Asian Ministers of Education Organization Regional Open Learning Centre (SEAMOLEC), a program

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of distance education (PJJ) based on ICT. One of the strategies undertaken by IKPIA is to build cooperation with several universities, both domestic and international ones.

The needs to adapt E-learning system is very important, and it will be implemented gradually, starting with a double model system in which they are only some parts of e-learning course and some parts of conventional ones. This is done because of the gradual application, whereas the type of learning is divided by applying a combination of PJJ learning system and also carrying out face to face learning classroom with online proportion to 80%.

To address it all, IKPIA PERBANAS keeps making a lot of improvements, especially related to the non-teaching-learning process which is spearheading to create a quality of graduates (Alumni) that are highly competitive. Utilization of ICT that is started from the academic services that directly deal with students (front office), starting from form filling study plan (FRS) to the results of the evaluation study (card studies/KHS). They are all already implemented by an online system web-based (application star), but for the use of ICT in teaching and learning process is still limited with some items available in the classroom although in a campus environment, there is a WIFI area, especially in FTI faculty because it has been using a e-learning-based module before.

DISCUSSION

Analysis of the advantages and disadvantages of e-learning in IKPIA PERBANAS

In general, the advantages of e-Learning in IKPIA PERBANAS vary in different forms, and e-Learning offers a large number of advantages which are invaluable for lecturers and students. They are such as personal experience in the study, the option to become independent in learning, the option of choosing the equipment used for the delivery of teaching and learning and collecting the materials according to the needs. Reducing costs, the institution using e-Learning can even reduce or eliminate travel costs for training, eliminating the cost of construction of a building and reducing the time spent by students to go to college. Easily accessible, the user can easily use e-Learning applications whenever they are connected to the internet. E-learning can be achieved by the users and the students without being limited by distance, time and place.

The disadvantages of e-learning are the lack of interaction between lecturers and students or between students themselves. The lack of interaction can slow the formation of values in the learning process. The tendency of ignoring the academic aspects and otherwise encouraging the growth of educational business/commercial is occurred. Teaching and learning process tends towards training rather than education. The rapid changing role of lecturers from not only the original resource but now also are required to know the techniques of learning using ICT (Information, Communication and Technology). The lecturers lack ability to operate the internet, and the lack of mastery of computer languages and so forth.

In order to maximize the implementation of PJJ in IKPIA PERBANAS and to contribute positively to the improvement of student achievement in the future, of course, it needs lots of Readiness in many aspects. Not a few examples of the application of PJJ even give a negative impact on student achievements such as students make a fraud in completing various assignments, wrong thinking patterns, ethical decline etc.

While the positive impact does give many benefits in terms of efficiency and effectiveness, knowledge and insight perceived from the implementation of e-learning by reviewing the readiness of teaching and learning resources, IKPIA PERBANAS will know exactly how much the level of readiness to implement e-learning optimally.

The general plan of the implementation of TP e-learning in IKPIA PERBANAS

In order to produce the ultimate outcome of e-learning, the research will be focused on the readiness of learning sources that include the aspects of infrastructure, system and procedure the readiness of lecturers and students, staffs and the curriculum.

This is considered to be paramount in order to foster the achievements of students. Begun with some formulas of questions such as: a) How to measure the level of learning resource readiness in using distance learning (PJJ)? b) How to plan the implementation of distance learning (PJJ) in order to foster the student's achievements? c) How to implement directly the distance learning in order to foster the students' performances.

The general plan of the implementation of e-learning is again essential because it is aimed to review and ensure the readiness of learning source in using distance learning (PJJ). Moreover, it is expected by doing so, it will truly improve and foster the achievements of students and set the measure standard of implementing PJJ used by other universities so that it will reach the ideal aims of the research.

The framework of general plan of the implementation of e-learning in IKPIA PERBANAS is by conducting research towards the learning source to measure the readiness of e-learning implementation. Such research is focused on the lecturers, students, staffs and infrastructures as variables. The level of e-learning source readiness is aimed to ensure the leaders that the e-learning sources can be monitored so that it is easy to review whether it is still coherent or not with the vision and mission.

With the method of the descriptive research on the object research, so the object which is researched is the learning sources available in IKPINA PERBANAS. Such research is conducted to know how far the level of readiness of the available learning source in planning the implementation of e-learning thoroughly. Such learning sources are infrastructures human resources learning materials and system & procedures. The approach used in this research is descriptive method with data collection method of survey.

The stages of the research to make a measuring instrument for the survey research should be appropriate with the e-learning concept. Instruments of the research are conducted by interviews and questionnaires, where the questionnaires are obtained from similar studies conducted earlier, added by some of the questions that are developed to the scope of the existing campus, IKPIA PERBANAS. The questions range from the competence variable of lecturers and students, the availability of infrastructure and perceptions about the implementation and the use of e-learning and the readiness of employees in managing e-learning at campus.

The prediction of implementation growth of E-Learning in IKPIA PERBANAS

Today we are experiencing a new wave. When the researchers further focus to the issue of the nature of mind and genetics, the scientist's perspective shifted

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toward the infinite dimensions. Through the stages of tier, the advanced research prompted the new knowledge that are interdependent at each other so that it produces Internet technology, robotics, biotechnology, and other technologies required for various necessities of life such as: household, entertainment, health, agriculture, defense, business, communications, transportation, not to mention the world of education.

The phenomenon of the development of information technology also brought major changes in scientific activities in IKPIA PERBANAS. First, the merging activities between scientists and technologists who are working with theory to the practical matters. Second, the growth of the institution that focuses in conducting research and development (R & D institutions IKPIA PERBANAS). Third, the growing of synergy between scientific institutions with the industry for the manufacturing of advanced products based on computers because of its sophisticated, efficient, effective, and innovative ability.

The phenomenon of the development of science and technology described above, inevitably also affect the tendency of changes in the application of e-learning in the learning process in IKPIA PERBANAS. This is indicated by: (1) a source of learning more easily searched, (2) the use and utilization of ICT as media, mobile learning, web-learning and other learning activities, and (3) the model of learning by the system individual learning or blended learning.

In the future, the process of learning in using media will experience a further growth (change), so IKPIA PERBANAS will continue to prepare for the changes that will occur to initiate the more upcoming e-learning model, including: Mobile Learning such as mobile phones, PDAs, laptops, and tablet PCs, where learners can access materials, references and applications related to subjects without being limited by space and time, wherever and whenever they are. Mobile learning is defined by Clark Quinn (Quinn 2000) as a model of learning that utilizes information and communication technology. Mobile learning refers to the use of the device/devices of information technology (IT) such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning.

M-learning is part of the electronic learning (e-learning), so that by itself is also part of the distance learning (d-learning). The concept of the mobile learning brings benefits of the availability of teaching materials that can be accessed at any time and visualized by any interesting material. Cloud computing approach to the learning process also becomes the future plans IKPIA PERBANAS. Could Computing is a combination of the use of technology (computing) and the development of Internet-based (cloud). Cloud computing is a method of computing where IT capabilities are provided as Internet-based service.

Cloud computing has 3 service levels given to the user: (1) infrastructure as service, this means a Grid to virtualized server, storage & network like Amazon Elastic Compute Cloud and Simple Storage Service. (2) platform as a service this is to focus on the application where a developer does not need to worry about the hardware and can still focus on the making of application without also worrying the operational system, infrastructure scaling, load balancing etc like Force.com and Microsoft Azure investment. (3) Software as a service this is to focus on the application of web-based interface that is accessed through service web and web 2.0. such as Google Apps, Salesforce.com and other social media like Facebook.

It is also the same with Ubiquitous Learning, an interaction model between computer and human where the access of computer is integrated thoroughly to the daily activity. According to IKPIA PERBANAS, such learning method is necessarily adapted so that the lecturers, students and other staff are inclined to study every day in everywhere.

The obstacle of the implementation of information technology in IKPIA PERBANAS

The trend of the advance of information technology in educational world is predicted to be still improving and has become a formal process of learning in the developed country. In Indonesia, to implement information technology is not easy as it looks. There are numerous obstacles in doing so not to mention for IKPIA PERBANAS.

The condition of taking advantage of the information technology in education now is jut in the early stage. Theoretically, there are many benefits obtained from information technology. However, practically it is not optimal yet. This is because there are few obstacles in doing so such as the lack of operating information technology in managerial level of government so that many of these benefits are not taken into account. Another real obstacle is because there is no firm commitment from government, so it ruins the implementation of information technology in educational settings.

Even though the educational institution is pressed to concern on the advantage of information technology, the headmaster or the rector usually does not really know what they have to do. The classic reason is by telling anyone that Indonesia is too large, so the implementation is not optimal. How it is possible to implement information technology in the school if there is no access to internet or computer or even electric. The limitation of budget and manpower also become an obstacle. To operate the information technology in the school surely needs a special staff dealing with such information technology because not all teachers can do that. For the schools that have both manpower and budget surely will have no problems. But for the schools that have no both essential points, it will be problems in the near future quite difficult to overcome.

The obstacles of the implementation of information technology are summarized upon several points: 1) The lack of the availability of information technology infrastructure owned by the institutions beside the unequal access to the internet; 2) Internet access is not optimal yet and relatively expensive in certain places because of none phone connection; 3) The lack of learning materials in Indonesian Language so it needs the skill of English to access the learning material in the internet; 4) Lecturers, students and other staffs still have no skill to take advantage of the internet. And because of that, the process of receiving material will be slowed down. That is why a few training is needed to equip lecturers and students in taking advantage of the internet; and 5) The budget of having or developing information technology infrastructure is not distributed well yet by the government.

IKPIA PERBANAS views that the tendency of changes in technology for educational technology has an influence on its primary education in the learning process that is expected to improve the achievement of learners as well as to provide a variety of learning that can improve the interest in learning and experiences of the learners.

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In addition, the trend which becomes the issue is the increasing demands of technology facility. The development of electronics technology requires IKPIA PERBANAS to compete to improve their technology infrastructures. In the beginning, the infrastructure provision demand was made to do the work in the field of administration, either for the organizers or lecturers. Furthermore, development of the demand itself has changed over the last decade from focusing only on facilitating the administrative tasks become a necessity/tool in facilitating learning. Some educational institutions have been seeking expansion of connectivity to find enough bandwidth to run more complex applications in the classroom such as audio–video streaming and so forth.

Troubleshooting Solutions

Government and IKPIA PERBANAS foundation have important role in the implementation of information technology for the advancement of the nation. Because of that, the commitment and seriousness of the government in taking policy in the field of education is a responsibility in responding and ensure the availability of information technology for our education.

An institution like PUSTEKKOM needs to get an abundance of greater responsibility in the integrated activity of information technology in the process of educating the nation. It is important to give the public about the benefits of the application of information technology in the field of education especially.

The lecturers IKPIA PERBANAS should also be given training so that they can manage media education through information technology. For that reason, a specialized personnel for maintaining information technology media is no longer required. In addition, the leaders in IKPIA PERBANAS need to realize the benefits of the use of information technology in education including the use of e-learning in the learning process.

CONCLUSION

1. The phenomenon of the development of science and technology affect the tendency of changes in the world of education. This is being realized because it has several advantages such as: learning resources are more easily searched, utilization in education such as media, multimedia and e-learning, mobile learning, web and other learning has benefits to increase the motivation of learners in the learning activities, and lecturers can determine which variation of learning desired by the learners.
2. The obstacle in implementing the information technology in education of IKPIA PERBANAS is the availability of facilities and infrastructures of Information Technology owned by this institution is not optimal. Moreover, the costs relating to the development and provision of information technology infrastructure is not yet available to the maximum in IKPIA PERBANAS.
3. The commitment and seriousness to implement information technology for education from the government is an important decision in responding and ensuring the availability of information technology for our education so that we are no longer left behind by other countries.
4. Encouragement from the leaders of IKPIA PERBANAS institution to utilize information technology in delivering learning by utilizing information technology needs to be improved.

BIBLIOGRAPHY

Dowling, James, et al. (2002). *The e-Learning Hype Cycle*. Retrieved from http://www.w-learningguru.com/articles.

Lillesland, Thomas. M and Ralph W. Kiefer. (2007). *Remote Sensing and Image Interpretation*. Yogyakarta: Gadjah Mada University Press.

Miarso, Yusufhadi. (2009). *Sowing Seeds of Education Technology*. Jakarta: Kencana Prenada Media Group.

P3M, Perbanas. (2011). *Implementation of Learning through e –learning.* Publisher: Perbanas Institute.

Suparman, A. & Zuhairi, A. (2004). *Distance Education: Theory and Practice.* Jakarta: Pusat Penerbitan Universitas Terbuka.

Sutanto. (1979). *Basic Knowledge of Image Interpretation*. Yogyakarta: Gadjah Mada University Press.

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CHARACTER LEARNING MODEL BASED E-LEARNING FOR CHILDHOOD IN ROUDHOTUL ATFAL ALL AROUND KOTA SEMARANG

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Abstract

Learning activities within the framework of character development that learners can use contextual approach based e-learning as a concept of teaching and learning that helps teachers and students find connections between what is taught with real-world situations, so students are able to make connections between knowledge possessed by its application in their lives. Thus, through contextual learning learners have more comprehensive results not only on the cognitive level (if thought), but at the level of affective (though liver, taste, and intention), and psychomotor (sports). This study intends to examine the model-based e-learnig pembelalajaran in early childhood in Roudhotul Atfal as the city of Semarang. In accordance with the formulation of research problems, the general objectives to be achieved through this research is to find once describing the learning model based on e-learning in early childhood in Roudhotul Atfal as the city of Semarang. Referring to the objectives to be achieved, this research program was designed with a "Research and Development", meaning that a research program followed up with a development program for repairs or improvements (Arikunto, 1996: 9). To produce a prototype model of learning based on e-learning in early childhood in Roudhotul Atfal as the city of Semarang, taken systematic steps in the form of the process of action, reflection, evaluation and innovation by applying qualitative research methods, descriptive, development, experimentation, and evaluation.

Keywords: *Character Learning Model, Based E-Learning*

BACKGROUND

Character education is not a new thing. Since the beginning of independence, the old order, the new order, and a period of reform has been carried out with names and different forms. But until now, have not shown optimal results, it is evident from the social phenomena that exhibit behaviors that are characterized as mentioned above. In Law No. 20 of 2003 on the System of National Education has affirmed that "national education serves to develop the ability and character development and civilization of the nation's dignity in the context of the intellectual life of the nation, is aimed at developing students' potentials in order to become a man of faith and fear of God Almighty, morals noble, healthy, knowledgeable, skilled, creative, independent, and become citizens of a democratic and responsible. "But it seems that the educational efforts undertaken by the institution and an institution builder others have not fully directed and devoted comprehensively in achieving the objectives of the national education, Learning activities within the framework of character development that learners can use contextual approach based e-learning as a concept of teaching and learning that helps teachers and students find connections between what is taught with real-world situations, so students are able to make connections between knowledge possessed by its application in their lives. Thus, through contextual learning learners have more comprehensive results not only on the

cognitive level (if thought), but at the level of affective (though liver, taste, and intention), and psychomotor (sports). Character education is not a new thing. Since the beginning of independence, the old order, the new order, and a period of reform has been carried out with names and different forms. But until now, have not shown optimal results, it is evident from the social phenomena that exhibit behaviors that are not in character. Character education should be given early, as revealed by Kusumandari (2015: 27): quality characters need to be established and nurtured from an early age. Early childhood is a critical period for the establishment of a person's character, moral cultivation through character education to children is the key to building the nation. That character education should be given to early childhood as a critical period for the formation of character, where the cultivation of moral character in children through education is key to building the nation.

This study intends to examine the learning model based on e-learning in early childhood in Roudhotul Atfal as the city of Semarang.

RESEARCH METHODS

Referring to the objectives to be achieved, this research program was designed with a "Research and Development", meaning that a research program followed up with a development program for repairs or improvements (Arikunto, 1996: 9). To produce a prototype model of learning based on e-learning in early childhood in Roudhotul Atfal as the city of Semarang, taken systematic steps in the form of the process of action, reflection, evaluation and innovation by applying qualitative research methods, descriptive, development, experimentation, and evaluation.

RESEARCH RESULT

This research was conducted in Semarang by taking a sample of 58 with a diverse population. Implementation of character values for young children is done through programmatic activities and habituation.

a. Programmatic activities include:

1. Dig a child's understanding of each area. This activity can be done through storytelling and dialogue guided by the teacher after watching a video about the plant. Students see and understand the teachers' impressions served by opening youtube. For example, for the theme of the plant, the teacher can ask open questions about the characters who are responsible for maintaining the plant. Examples teacher's question, "Why should we be responsible for maintaining the plants?" Or "How can we be responsible for the plant?" Every child can give different answers. All the views of the child appreciated as it reflects their understanding. The results were obtained the following data: there are 38 RAs often, 8 RA often do, 7 RA sometimes do, 0 RA never did and 5 RA rarely do.
2. Build appreciation of children with emotionally involved to realize the importance of applying the value of the character (in charge). The process was also through open-ended question or through observation of the circumstances that exist around the early childhood institutions. For example after the storytelling and dialogue about the character of responsibility Awab on crops, teachers can encourage children to explore early childhood institutions around about plants and observe

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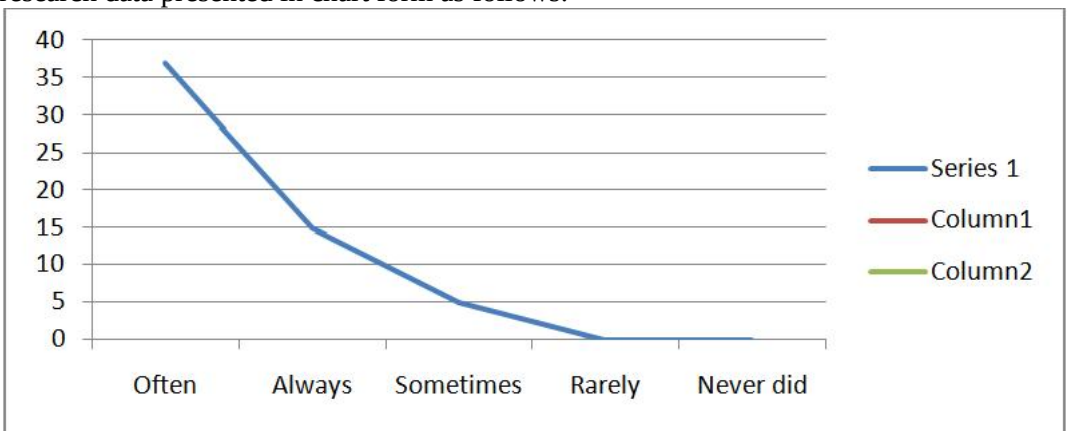
the differences in the plants withered and fresh. Then the teacher asked a question, "Why is there a plant that is wilted and fresh?" Or "How does it feel when we become plants wither it?" Or "What should we do so that the plants do not wilt?" On the implementation of the lesson, the whole RA (58 schools) states always encourage students to observe the situation and conditions of the activities performed.

3. Inviting children to jointly perform character values that are told. For example after the child explore and driven to the character of the responsibility for the plant, the teacher gives the opportunity for children to carry out the character of responsibility for plants according to the desire and ability of children. From the research data presented in chart form as follows:



The data presented in the chart above shows 37 RA stated frequently, 16 RA always do, and 5 RA sometimes do.

4. Achievement of the stages of development of the students. In this case the child is asked to recount events and feelings after doing activities. Teachers can provide reinforcement and praise as well as a touch of affection towards what is reflected in children, for example by saying, "Thank you, already responsible for watering the plants." Results showed that all RA always provide reinforcement and praise as well as a touch of affection towards what is reflected child.

b. Habituation activities conducted through:

1. The routine of early childhood institutions, the activities carried out in early childhood institutions are constantly and consistently every time. Examples of routine activities such as early childhood institutions in greeting when he met to instill character values of respect and manners, turns to be the group leader to instill character values leadership and justice. Examples of other activities is checking the cleanliness of the body, nails, ear hair and others to instill the value of responsibility (K4 [Hygiene, Health, tidiness, and Security]). The results of the research that is visible throughout the RA always do routine activities both greetings when they met, turns to be the group leader to instill character values leadership and fairness and checks the cleanliness of the body, nails, ear hair and others to instill the value of responsibility (K4 [cleanliness, health, neatness, and Security).
2. Spontaneous activities, ie activities performed directly or spontaneously on the spot, usually done when the teacher knows their deeds were not good/bad that

needs to be corrected and giving appreciation (awards, praise) to the character values applied by the child. For example, say thank you, picking up trash and dumped in place, paying attention and help friends. Research conducted to obtain data that all RA always doing activities conducted directly or spontaneously on the spot.

3. Modeling, ie activities that can be replicated and be a role model. In this case the teacher demonstrate behaviors consistent in realizing the value of a character, which can be observed by children in daily activities either inside or outside of early childhood institutions. For example, well-dressed teacher, the teacher came just in time, spoken word polite, be affectionate, and honest. The whole RA always conduct exemplary. In addition, exemplary activities also by reading stories exemplary prophet and his companions.
4. Conditioning, namely the circumstances of early childhood institutions as a support character education activities. For example, by maintaining clean toilets, provision of garbage bins, and neatness tool educational games, to instill character values such as responsibility (K4 [Hygiene, Health, Neatness and Security]). This conditioning activities are always carried out in the entire RA that are expected to familiarize students to always maintain health.
5. Culture of early childhood institutions, including the atmosphere of life in early childhood institutions that reflect effective and productive communication that lead to good actions and interactions each other with courtesy and manners, togetherness, and vigorous in conducting active learning, innovative, creative, effective, and fun. The whole RA always have a good organizational culture where indicated with effective communication.

In addition to the two ways of implementing character education above there are also other ways that teachers can do to involve parents through parenting activities, such as to convey to parents about character values that are embedded in institutions of early childhood education to the students, so that the values it can also be applied and socialized in a family environment. The implementation of character education also taking into account the presence of several supporting elements such as:

1. The reference book advocates like the story books loaded with character, biography contains values of characters, and others who are learning media for the cultivation of knowledge and the feeling of goodness.
2. Media told in the form of a hand puppet, micro-play, educational games and tools that can be used as a media establishment character value.
3. Media MPI study be available in the early childhood institutions and can support character education.

CONCLUSION

a. Of the study sample number 58 RA as the city of Semarang, the entire RA already implementing character education based on e-learning.
b. Organizational culture is built through effective communication.

LITERATURE

Berk, L. E. (2003). *Child Development. Sixth Edition*. USA: Illinois State University.

ISBN 978-602-73030-1-0

Harahap, H.A.H & Dewantara, S. B. (1980). *Ki Hajar Dewantara ditangkap dipenjarakan dan diasingkan*. Jakarta: Gunung Agung.

Harris, R. et all. (1995). *Competency based Education and Training: Between a Rock and a Whirlpool*. Australia: MacMillan Education Australia.Ltd.

Harkonen, U. (no year). *Defining Early Childhood Education Through Systems Theory. Finland: University Of Joensuu*. Retrieved from http://sokl.joensuu.fi/harkonen/verkot/Defining%20early-Article. pdf.

Hurlock, E. (1999). *Perkembangan Anak. Jilid 2*. Jakarta: Erlangga.

Kusumandari, Rafika Bayu. Istyarini. (2015). Character Education Development Model-Based E-Learning and Multiple Intelegency in Childhood in Central Java. *Global Journal of Computer Science and Technology: Information and Technology: Vol. 15, Issue. 3. Version 1.0 Year 2015* (pp. 24-34).

Lickona, T. (1992). *Educating for Character, How Our Schools Can Teach Respect and Responsibility*. New York: Bantam Books.

Tillman Diane (2004*). Living Values Acivities for Children Ages 8-14*. Jakarta: Grasindo.

MOBILE LEARNING FOR EMERGENCY LEARNING, OPTIMIZE LEARNING IN DISASTER AREA

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Abstract

This research will be made for setting up a mobile learning program product for optimizing learning and reduces trauma to the disaster. Use of mobile learning is expected to answer the problems faced. Usefulness of the research is: the use of mobile learning program to optimize learning and reduce post-disaster trauma in children due to mobile learning program is very easy and inexpensive to use. Referring to the objectives, the research program was designed with a "Research and Development", meaning that a program of research followed up with the development program for the repair or improvement. To develop a prototype of a mobile learning this will optimize learning and reduce post-disaster trauma in children. The results, all of the students stated that the program was fun game (100%), easy to play game in the program (100%), like the program (100%), had no difficulty in playing the program (100%), and all of the student sex pressed able to answer all the questions in the program (100%). Thus, the Mobile Learning program is very good to be developed in order to optimize learning and to reduce trauma in children after disasters. The conclusion: Mobile learning can be applied to optimize the post-disaster learning, where children enthusiastically playing by answering questions on the program; and can be applied to reduce the trauma. This program can be used to study emergency in the affected areas, it is necessary to the attention of the government to develop a program of Mobile Learning.

Keywords: mobile learning, optimization learning, reduce trauma

INTRODUCTION

Indonesia is a country located on a fire ring territory because Indonesia areas located on the geographical surrounded by volcanoes. This condition leads to Indonesia frequently hit by natural disasters, so many school facilities and infrastructure damaged. While school facilities are damaged, children must continue their school, especially in primary schools. To overcome this, the media is needed for effective learning. In addition to overcome the limitations of facilities and infrastructure, can also cope with children traumatized by the disaster. One solution used is the use of mobile learning based games using computer program. Various computer programs have been offered, one of which is with the program Adobe Flash. The program can produce animated cartoons, interactive animated drawing, presentation, video clip, movie, web animation and other animation applications according to our needs. The term Mobile Learning refers to the use of handheld devices and mobile information technology, such as mobile phones. The presence of cellular technology or hand phone promise of opportunity is considerable potential for the development of a new model, given the high level of ownership of the device and the device as well as tariff rates are getting cheaper and increasingly sophisticated features. However, since the boom in recent decades, the use of mobile phones is still

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limited to communication and entertainment. Until now still a bit of research and development that is focused to take advantage of this cellular technology as a means of education. Using Mobile Learning is expected to be an alternative model of socialization is effective, attractive, interactive and fun. Besides the things mentioned above, other uses of the use of Mobile Learning, can create variations in the delivery of information so as to avoid boredom on the user (society). In Mobile learning is very easy to propagate, i.e., with some found on mobile devices such as Bluetooth, and data cables.

The program is applied to a mobile phone and can be used by children with easy. Programs that are formatted in the form of games will be favoured children. They will be fun to play and without them knowing it, they're actually learning. This solution is in addition to cheap, easy and fast creation and can be applied to any mobile phone that has bluetooth facility. This program can also be used in all regions affected not only Indonesia. Using Adobe Flash 8 program because this program is easy to use and have a complete facilities than program before. Material will formatted by interactive games, so children can evaluate themselves. Teacher just guides how they use this program.

Mobile learning program can be use in emergency learning in every damages areas, not only in Indonesia. This program is new, because never program like this that used in emergency learning. It's can be a good solution to answer the problem about limited facilities in damages areas because disaster. Furthermore, there are unique for this program. First, to make this program is cheap, easy, fast and can be aplied in every mobile phone who has bluetooth facilities. Second, every children can use this program and they will happy to operate the program. Third, this program can decreas the trauma of children that affected by disaster.

METHODOLOGY OF RESEARCH

Referring to the objectives to be achieved, this research program was designed with a "Research and Development", meaning a course of study followed up with a development program for repairs or improvements (Arikunto, 1996:9). To produce a prototype mobile-based learning games using Adobe Flash 8 to improvement learning in damage field, steps taken in the form of a systematic process of action, reflection, evaluation and innovation by applying qualitative research methods, descriptive, development, experimentation, and evaluation. Therefore, as the case in scientific research steps taken by the researchers is to conduct assessments (exploration) of the object being studied. In this connection, methods of qualitative research is one method that offers exploratory research aimed at design. Unlike in experimental research designs such as qualitative researchers on the study design does not starts from a certain frame of mind, but let the research setting naturally/as they are and seek to understand the phenomenon that is by putting yourself on the object under investigation (empathy). Another reason is because the use of qualitative methods with qualitative methods of ideas, concerns, attitudes and values of a number of the person being investigated can be easily understood (Zelker, 1989 in Utomo, 1997:71).

Data were collected from an experienced background (natural setting) as a data source directly. Meaning of the data obtained can only be done if the depth of the facts obtained. The study is expected to construct a theory inductively from the

abstractions of data collected about the learning-based mobile games using Adobe Flash 8 to improvement learning in damaged field based on the findings of experienced meaning in the background. Areas that are the object of research is the Padang, Yogyakarta and Aceh. The third area is the area most often affected, especially the devastating earthquake that destroyed much of school facilities. Principles of qualitative research findings emphasize that any (temporarily) based on the data, so the findings were more tersahihkan before been named as a theory (Alwasilah, 2003:102). Qualitative research design focuses on specific phenomena that do not have the generalizability and comparability, but have internal validity and contextual understanding. What to do (action) research to achieve the research goal was to outline there are four, namely (1) build familiarity with the respondent, (2) determination of the sample, (3) data collection, and (4) data analysis. This study is not just about knowledge that can dibahasakan (proportional knowledge), but also about the knowledge that can not be dibahasakan (tacit knowledge), which is almost impossible to obtain through rationality approach (Lincoln and Guba in Alwasilah, 2003:103).

RESULT OF RESEARCH

To facilitate research activities, the research team to consolidate to discuss various matters related to the research is to design and create a script Mobile Learning products, permit the study and carry out research activities (research data retrieval). Prior to gain permit the research, the research team drafting the Mobile Learning. This text is made with concept-based learning games for children elementary school age. From the discussion, members of the research, it was determined to make the material math for grade 2. Making the script takes 1 week. After the text so, the research team asked for help from the media experts BPM (Mr. Agus Tyarso and Mr. Indarto) to assess the feasibility of the media. From the results of the second assessment of the media experts, there was improvement in the manuscript that is the background color which was originally black was changed to blue, because of the color also affect the child psychologically where the bright colors will give a pleasing effect. In the revised kinds of games are enlarged forms as the model is difficult to apply to the HP. The research team revised the manuscript in accordance with input from media experts. Manuscripts submitted to the newly created media experts back to assess its feasibility. In the second text, media experts that the text is very feasible to produce. The manuscript was produced so as to produce Mobile Learning. Products Mobile Learning that is so then applied to a HP-based Java such as Nokia N.73, N.90, and so forth. The product is ready to be tested to the field.

This research was conducted on 18-20 July 2012 by taking a sample of 25 students in grade 2. Research Team, amounting to 5 for 3 students assisted in the retrieval of data. In the data collection activities of research, the research team brought five pieces of Java-based Nokia cell phone has been applied to the product Mobile Learning. By Mr. Marjadi, the research team was introduced with the class teacher 2 totaling 3. Because of the busyness that is, the teacher who accompanied the research activities is Mrs. Ety Eka Martini. Mrs. Ety is 2C and the homeroom teacher Variable (GTT). He graduated from Indonesian Education University of Yogyakarta and has become GTT since 2006.

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On the first day, the researchers make introductions with students sampled, and then give an explanation on how to run a program that has been applied in HP. After all the students clear, they are asked to run the program. To further facilitate the process of observation reduction of trauma experienced by students after running the program, each personnel researcher observed 5 students. From all existing samples, only 16 students state that is capable of running the program and was pleased to learn while playing using Mobile Learning program, while 9 people do not want to answer. They tend to be shy and reluctant to run the program on the grounds could not and shame. Students who are 16 years old are able to run the program though a bit long in answering any questions. On the first day, the highest score achieved by students is 70, and the time to complete the whole question long enough, ranging between 2-5 minutes each items. Scores can be obtained if the students running the Mobile Learning program has been applied to HP. Answer students when answering the questions, there are two types: You're great ... Smart and yet right. So that when answered correctly then it will come out responses You're great ... Clever! Children are increasingly eager to answer questions correctly. Whereas if the answer is wrong, out response Not Right! This word does not corner the child that he is not smart, but the response spur children to answer correctly. From the interviews, the students stating that a game program that is fun (76%), easy to play a game that is in the program (76%), like the program (76%), had no difficulty in playing the program (76%) and students who is able to answer all the questions in the program (76%).

On the second day, the scheme is still the same study where researchers observe each 5 students. The results of the study on the first day, of which there are 9 students who do not want to run the program because of shame, researchers took the initiative that if they did not get a score, not rewarded. From 9 students on the first day, they did not want to run the program, once courted by the research team and a teacher assistant, eventually want to run the program. At first they found it difficult. Having helped run the program by way of their friends, they were delighted. In fact, they began to keen to get a high score. Meanwhile, 16 students from the first day had been keen to run the program; they are vying to get a perfect score, 100. Most students can achieve the highest score, only nine students slower in achieving a score, compared to 16 students more. Free student in answer to the whole problem that is better than on the first day that range from 2-5 minutes in answering any because, being 1-3 minutes. This is because the students have started to memorize the answer to every type of questions there. From the interview on the second day of the study, students who claimed that a game program that is fun (88%), easy to play a game that is in the program (88%), like the program (88%), had no difficulty in playing the program (88 %) and were able to answer all the questions in the program (88%).

The third day of the study, all students are excited to get the highest score. This shows that the program is very liked by the students and can reduce post-disaster trauma in children. Students who initially shy and do not want to run the program, be enthusiastic to run the program and trying to get the highest score in the quickest time although they are still less rapidly with more friends totaling 16 people. From interviews on the third day of the study, all of the students stated that the game program that is pleasant (100%), easy to play a game that is in the program (100%), like the program (100%), had no difficulty in playing the program (100 %) except in the form of shooting games there are 1 students who expressed a bit difficult to play,

and all the students declared able to answer all questions in the program (100%). Thus, the Mobile Learning program is so nice to be developed in order to optimize learning and to reduce trauma to the child after the disaster. The response of students who was working on the problems is also very good. They are very motivated to be able to answer all questions. So the children busy playing using Mobile Learning program but at the same time learn and can reduce post-disaster trauma.

CONCLUSION

The conclusion of this study is:

1. Mobile learning can be applied to post-disaster optimize learning, where children enthusiastically playing by answering questions on the program.
2. Mobile learning can be applied to reduce the trauma experienced without them knowing.

LITERATURE

Bull, Susan. (2003). *User Modelling And Mobile Learning. Educational Technology Research Group, Electronic, Electrical And Computer Engineering*. Birmingham: University Of Birmingham.

Kusumandari, Rafika Bayu. Istyarini. (2015). Character Education Development Model-Based E-Learning and Multiple Intelegency in Childhood in Central Java. *Global Journal of Computer Science and Technology: Information and Technology: Vol. 15, Issue 3, Version 1.0 Year 2015* (pp. 24-34).

Schwabe, Gerhard,; Go, Christoph. (2005). Mobile Learning With A Mobile Game: Design And Motivational Effects. *Journal Of Computer Assisted Learning 21* (pp. 204–216).

Traxler, John. (2004). Mobile Learning-Evaluating The Effectiveness And The Cost. Learning With Mobile Devices, A book Af Papers; Learning And Skill a Development Agency 2004.

Wood, Karen. (2003). *Introduction to Mobile Learning (MLearning),* Ferl, Becta (British Educational Communications and Technology Agency).

Virvon, Maria dan Eythimios Alepis. (2004). *Mobile versusdesktop facilities for an e-learning system: users'perspective,* IEEE International Conference on Systems, Man and Cybernetica.

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EFFECTIVENESS CHARACTER EDUCATION BASED E-LEARNING AND MULTIPLE INTELLIGENCE AT THE EARLY CHILDHOOD IN CENTRAL JAVA

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Abstract

Character education will be more meaningful if carried out since early childhood. At the early age of 0-6 years, the brain develops very rapidly up to 80 percent. At that age the brain to receive and absorb various kinds of information, do not see the good and the bad. That is the period in which physical, mental and spiritual child will begin to form. Therefore, many are calling this period as the golden period of children (golden age). It is also because early childhood education is the foundation for the formation of character. On the implementation of character education for early childhood adapted to the characteristics of each school and the emphasis of each institution penyelenggarakan early childhood education. Moreover, childhood is a time of play will be more fun if the learning utilizing e-learning and simultaneously develop multiple intelligences (multiple integency). This study intends to develop character education model based on e-learning and multiple intelligences in early childhood based in Central Java. As the above description, the problem in this research are: development of character education model based on e-learning and multiple intelligences in early childhood based in Central Java. Referring to the research to be conducted, a "Research and Development", meaning that a research program followed up with a development program for corrections or improvements.

Keywords: Character Education, Based E-Learning

BACKGROUND

Character development which is an effort to mandate embodiment of Pancasila and the 1945 Constitution Preamble To support the realization of the ideals of character development, as mandated in the Pancasila and the 1945 Constitution as well as overcome the problems of nationality today, the government designated the character development as one of the priority programs of national development where character education placed as the basis to realize the vision of national development, which is "to create a society that has high morals, ethics, culture, and based on the philosophy of Pancasila." on the implementation of character education early childhood each school tailored to the characteristics and emphasis of each institution conduct early childhood education. Moreover, childhood is a time of play will be more fun if the learning utilizing e-learning and simultaneously develop multiple intelligences (multiple integency). This study intends to develop character education model based on e-learning and multiple intelligences in early childhood based in Central Java. The problems in this research are: development of character education model based on e-learning and multiple intelligences in early childhood based in Central Java. In keeping with the focus of the research, in particular the objectives to be achieved through this research is to find once described the development of

character education model based on e-learning and multiple intelligences in early childhood based in Central Java.

Kusumandari (2015:26) said that the purpose of this model is to improve the social skills of children through social cognitive learning effective strategies to provide opportunities for children to practice social behavior in various social contexts.

RESEARCH METHODS

Referring to the objectives to be achieved, this research program was designed with a "Research and Development", meaning that a research program followed up with a development program for repairs or improvements (Arikunto, 1996: 9). To produce a prototype management of character education in early childhood based on e-learning and multiple intelegency in Central Java, taken systematic steps in the form of the process of action, reflection, evaluation and innovation by applying qualitative research methods, descriptive, development, experimentation, and evaluation. This study aimed to get an idea of depth on the model of character education in early childhood based on e-learning and multiple intelegency in Central Java. The reason the use of the use of qualitative methods for the knowledge of researchers, there are no results of the assessment and empirical research specifically about the model character education in early childhood based on e-learning and multiple intelegency in Central Java. Therefore, as was common in scientific research steps taken by the researchers is to conduct assessments (exploration) of the object being studied.

RESEARCH RESULT

Patterns of learning in kindergarten

The learning process carried out so far in kindergarten using conventional teaching methods, using media images, text and numbers in accordance with the material that will be presented as a learning medium. In applying this method of learning there are still weaknesses, including students cool with himself and teachers are more likely to pay attention to students who are more active than the students who did not say anything. In addition, by using the conventional method is intelligence of each child can not develop optimally. Not infrequently students more cool with his own game, so that the knowledge they gain is not increased. Students in receiving the material is more likely to play while learning. This was proved by the learning process when using a puzzle, students are more active and faster in receiving the material submitted by teachers. As the research results that have been obtained in the first year, the educational model of character-based e-learning and multiple intelegency in Central Java revealed aspects of coverage objectives, materials, costs, schedule of teaching, learning tools, implementation, evaluation systems, facilities, ability of teachers implementing learning and ability of teachers to prepare the media. The results of the study of this component are presented in the following table.

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Table 1: Planning Programme

No	Component	Percentage
1	Purpose	95 %
2	Material	65 %
3	Cost	88%
4	Schedule of Learning	100 %
5	Learning Media	90 %
6	Implementation Activities	85 %
7	Evaluation System	65 %
8	Facilities	76 %
9	The ability of teachers in implementing the learning	100%

Based on the table above, shows that respondents in this study stated objective of 92%, materials 65%, the cost of 88%, learning schedule 100%, the learning device 90%, implementation of the 85%, the evaluation system 65%, the facility 76%, the ability of teachers in implementing learning 100% and the ability of teachers to prepare the media by 69%. Character education model based on e-learning and multiple intelegency developed adapt to the characteristics to each school. In addition, the implementation also customize the capabilities of each school. Learning tool created for the implementation and evaluation more focused so that the expected results are satisfactory.

At each school, within one week of the learning process one uses Multimedia Interactive Learning, only TK Labschool Unnes who implement the learning process using interactive learning media for 2 times a week. Every time they received the material very conducive classroom and students easily directed. Suppose Multimedia Interactive Learning begins when students sit quietly and with careful attention to the media. At the time of student evaluations easier and faster to solve the problems. However, it is unfortunate the teachers in the kindergarten is still lacking in creativity manufacture of Multimedia Interactive Learning, so seldom use MPI as a learning medium. This is because they have not achieved a kind of ability to create interactive learning media.

Description of Research Results

Description Multimedia Instructional Materials for Early Childhood Learning

In this study, the products produced by researchers is the theme Multimedia Instructional Materials (1) the environment, (2) health, (3) self, (4) vehicles and (5) for kindergarten country B. After a test phase use of the product and be based on appraisals by experts, these products have been declared feasible and effective use as a medium of learning.

Multimedia Instructional Materials are also included in the teaching aids which are media teacher teaching materials used in teaching and learning activities in the classroom. Multimedia Instructional Materials is expected to facilitate the performance of teachers in delivering the material to the students. In the Multimedia Instructional Materials have also included accompanying materials for teachers as guidance in the delivery of content and media as well as supporting material accompanying the study. Multimedia Instructional Materials usefulness in the learning process as follows: (1) guidelines for teachers who will direct all of its activities in the learning process. (2) can make an abstract subject matter becomes more concrete/tangible so that the material is more easily understood by students, (3)

to overcome the limitations of time and space, means the teacher can provide lessons differences between the two types of traditional markets and market modern without having to bring the students to the direct market because by simply using the topic Multimedia Instructional Materials differences in traditional and modern markets, the students can understand, and (4) information delivered in the right lessons will leave a deep impression on students to more easily understand and more attention in the process of teaching and learning activities. Multimedia Instructional Materials products have been adapted to the users are students kindergarten class B. In the manufacture of these products making of MPI researchers apply the knowledge they have learned and further develop course by making Multimedia Instructional Materials different from existing MPI for the manufacture of Multimedia Instructional Materials utilizing Microsoft Power Point in the making and also take advantage of Adobe Flash CS6 in making its educational games. Assessment in the study done by direct observation of learning before using Multimedia Instructional Materials and after using the Multimedia Teaching Material. The effectiveness of this medium can be judged from the difference in the behavior and attitudes and understanding of students before and after using the Multimedia Teaching Material.

This research was conducted in four phases systematically. The first stage is to conduct preliminary research to know the learning process that is already underway. In the preliminary research conducted by interviewing principals, researchers found that it lacks the instructional media used, because the school itself has implemented multimedia in class since 2012, the interactive learning media also should be updated in accordance with the curriculum used. To the researchers create Multimedia Teaching Materials to assist teachers in presenting the subject matter and not abstract.

After doing some research first phase to find the existing problems, the researchers began to develop products in line with the problems in the first stage of research through consideration of problem analysis and requirements analysis. Researchers develop products Multimedia Instructional Materials. Products developed with the help of Microsoft Power Point and educational games with the help of Adobe Flash CS6. Multimedia Instructional Materials product also comes with "accompanying Materials for Teachers" and "Media accompanying". Accompanying materials for a teacher with steps to do for teachers to view media, while the media accompanying the additional media that can be brought to the teacher in the classroom. Researchers set product design and make the initial product, then do validation assessment by media experts and subject matter experts. Early product validation assessment was conducted to determine the shortcomings and weaknesses of the media that is created by the researchers to then revised and more refined. Media expert for the media, is Mr. Agus Triarso S.Kom, M.Pd as a media of learning developer in the Central Educational Multimedia Developer. While the subject matter experts for this media is Ms Ismuwati S.Psi as a teacher and also served as head of the TK Labschool Unnes.

The results of the validation media by media experts obtained a value of 76% for media aspects, 70% to aspects of interactivity, and 80% for the aspects of the display. When viewed from the overall aspect of the obtained average value of 76% can be said that the product is effective Multimedia Instructional Materials to be used in terms of media. Assessment of the content or material obtained from the validation

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conducted by subject matter experts acquires a percentage of 88% of the total aspects in it. That means the content or materials that in-the-media can be said to be effective and has included extensive material and in accordance with the indicators to be achieved. The scores of each aspect are: 93.3% for the material aspects, 80% for the learning aspect, and 93.3% for the media aspect. With the shortage and also suggestions given kind of media experts and subject matter experts then it can be taken into consideration and the benchmarks by the researchers to improve the design of the initial product before it is given to student testing that would be more appropriate then reduced product Instructional Materials Multimedia trial, The third stage is the stage of product trials Multimedia Instructional Materials have been developed. Multimedia Instructional Materials trial is done both to teachers and students kindergarten B. Then this Multimedia Instructional Materials tested on 10 students were selected randomly as respondents in the pilot phase of the product. If the test phase is still a shortage, then the researchers will conduct further improvement before being reproduced to be a media product that will be used at the stage of testing the effectiveness of the use of the product Multimedia Instructional Materials.

The fourth stage is to test the effectiveness Multimedia Instructional Materials on learning in kindergarten B. At this stage the first given treatment in the form of learning by using Multimedia Instructional Materials. The provision of this treatment is given directly by the teacher to the students to determine the validity of the media in its application during the learning process. In this treatment, the media was introduced by teachers and students to acquire the students' response to material submitted through Multimedia Instructional Materials. On the results of the assessment of effectiveness of the product produced that the values of t distribution, when df = 9, obtained from dk n-1 = 10-1 = 9, to test one side with a standard error of 5%, then the price of the t-table 2.262, T When the price fell to the reception area Ha, Ha stating that there is a difference in the effectiveness of learning to use the Multimedia Instructional Materials unacceptable. Based on calculations, the t-count 10.064 which falls on reception Ha which means rejection of Ho. Thus it can be concluded that there is no significant difference in the effectiveness of learning using Multimedia Instructional Materials by conventional methods.

CONCLUSION

The development of character education in early childhood based on e-learning and multiple intelegency in Central Java took samples in Semarang, Tegal, Banyumas and Kudus with the following results:

a. In this study, the products produced by researchers is the theme Multimedia Instructional Materials (1) the environment, (2) health, (3) self, (4) vehicles and (5) for kindergarten country B. After a test phase use of the product and be based on appraisals by experts, these products have been declared feasible and effective use as a medium of learning;
b. This research was conducted in four phases systematically. The first stage is to conduct preliminary research to know the learning process that is already underway. In the preliminary research conducted by interviewing principals, researchers found that it lacks the instructional media used, because the school itself has implemented multimedia in class since 2012, the interactive learning

media also should be updated in accordance with the curriculum used. To the researchers create Multimedia Teaching Materials to assist teachers in presenting the subject matter and not abstract.

LITERATURE

Borba, Michele. (2008). *Membangun Kecerdasan Moral: Tujuh Kebajikan Utama Agar Anak Bermoral Tinggi*. Translated by Lina Jusur. Jakarta: PT. Gramedia Pustaka Utama

Doni Koesoema. A. (2007). *Pendidikan Karakter: Strategi Mendidik Anak di Jaman Global*. Jakarta: Grasindo. Cetakan Pertama

Kemdiknas. (2010). *Desain Induk Pendidikan Karakter* (pp. 8-9). Jakarta.

Kusumandari, Rafika Bayu. Istyarini. (2015). Character Education Development Model-Based E-Learning and Multiple Intelegency in Childhood in Central Java. *Global Journal of Computer Science and Technology: Information and Technology: Vol. 15, Issue 3, Version 1.0 Year 2015* (pp. 24-34).

Nasution. (1980). *Metode Penelitian Naturalistik Kualitatif*. Bandung: Tarsito

Suryabrata, Sumadi. (1990). *Metodologi Penelitian (Cetakan Kelima)*. Jakarta: Rajawali

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TRENDS AND ISSUES IN E-LEARNING RESEARCH IN EDUCATION AND TRAINING

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TRENDS AND ISSUES OF E-LEARNING 2.0 RESEARCH FROM FORMAL TO INFORMAL NEW EDUCATION AND TRAINING

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Abstract

This article tries to explore trends and research issues in the area of electronic learning (e-learning) for education and training. The study of the trends and issues of e-learning research is arguably began with the viewpoint of conceptual, theoretical, and practical innovation of e-learning 2.0. Presenting pieces of research results, the practices of e-learning 2.0 itself, and pedagogical approaches and strategies in the field of education and training.

Keywords: E-learning 2.0, training and education, formal and informal education

INTRODUCTION

Perhaps more than ever, we must pay attention to rapid technological change and how the proliferation of resources to lead change efforts in various areas of life and social systems. Changes in internet multimedia, telecommunications, wireless applications, handheld electronics, social networking software, Web 2.0, and so radically redefine the way people obtain information and how to teach and learn. As Downes (2005) says that the emergence of Web 2.0 is not a technological revolution, but a social revolution. In particular, the application of web 2.0 has the capacity to dramatically change the surrounding social system of educational institutions to the companies involved in training to extend the possibilities for e-learning.

A tremendous increase in the use and application of technology in our daily work, there was a significant shift of the expectations of the people such as customers and learners, resulting in a significant shift in the needs of the organization as well as limited resources. From money to time for people, social systems must respond every day to do more with less support, and the articles of this review can help us along the way to an understanding of the trends and current issues in the study of e-learning, especially in the field of education and training, Review not only information on this theory, but also their implementation in practice, and where the results of research and existing practices, to contribute to the holistic consideration of the literature.

LITERATURE REVIEW

The emergence of Web 2.0 E-learning 2.0

Getting started discussion about trends and research issues of e-learning the most, we begin by reviewing changes in digital technology, particularly web-based technology continues to expand the range setting for education and training, integrate different experiences and learning support which is available anywhere, anytime and directly (just-in-time). Similar to CBT (computer based training), IBT (based training internet), or WBT (web based training), the term e-learning is gaining popularity in

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the early 2000s refer to any learning aided electronically, but most often associated with learning offered through computers and the internet.

Changes have been focused on the emergence of web 2.0 is challenging traditional e-learning to stop being just a medium, but as a platform, where learning occurs. E-learning 2.0 here is intended as a kind of content is produced in a more organized and structured in lectures, given to students and and controlled by the instructor to reach specific learning goals. When a web 2.0 application is specifically focused on people and build community within the framework of a social media or social networking, then there may also occur study among users are exchanging information and learn each other. Therefore, e-learning 2.0 is more than just a book or manual, but more like a language or a conversation as a learning experience for its users.

As revealed by O'Hear (2006) that "E-learning 2.0 is an approach that combines multiple use of tools and web services, such as blogs, wikis, and other social software to support the creation of a learning community". E-learning 2.0 is different from traditional e-learning. Instead students only receive, read and respond to the learning content in traditional e-learning, e-learning 2.0 enables learners to create content and collaborate with colleagues to form a learning network with the creation and distribution of content responsibility. This is reinforced by Yang (2010) that "E-learning 2.0 can take advantage of many sources of content are combined together into a learning experience and utilize a variety of tools including online references, courseware, knowledge management, collaboration and search". Furthermore, e-learning 2.0 evolved into one of the areas most exciting, dynamic, and challenging that involves learning and training.

Practices on E-learning

Learning Management Systems (LMS)

The tendency to use web 2.0 technology and social media has a big impact on the changing nature of e-learning now. For Cavus (2015), assuming that the "LMS provides a virtual platform for e-learning to enable management, monitoring of students, shipping, tracking of learning, testing, communication, registration and scheduling process". That is, the LMS provides a platform for virtual learning environments and some features of the mass public. LMS is still a virtual platform favored by some existing online professional training, as well as referring to the findings of research conducted by Sittiwong and Manyum (2015) about the opinion learners are found high score in the knowledge management system to support online learning. From the findings of the study also resulted in two comments main obtained from the audience, namely: 1) Social media should be widely available and sites are integrated into the website to achieve knowledge management system better if it is a goal that is geared for peer to peer, participants students and supervisors, or students and mentors. This can be proven to be effective communication channels to produce a number of solutions to unforeseen circumstances during the internship; and 2) There must be a careful selection of applications available in social media that efficiently contribute to the development of knowledge management under the network that can be accessed single user in which the stakeholders can jointly exploit.

Microlearning

Referring to Yang (2013) the term "microlearning" is a unit of learning, education and training are relatively small and their learning activities in the short term. Microlearning is one of the modes of informal learning that is applied synthetically in the field of work and business with the help of RSS, video podcast, WIKI, RSS and other Web 2.0 technologies (Zhu, Nie, Zhang and Chen, 2011). Microlearning has been regarded as a very flexible way, efficient, relaxed and effective for learners to learn because can reduce the cognitive load on the learner.

Blended Learning

Blended learning is a learning combines face to face learning interactions are scheduled with technology or computer-mediated learning (Graham & Dziuban). In line with the statement of Graham & Dziuban, Rahman, Hussein, and Aluwi (2015) also describes that the blended learning approach to learning is popular among higher education institutions at this time because it integrates into face to face with the web-based learning.

Mobile Learning

With the growing devices that are relatively affordable by many people of the world such as the iPhone and Android today, has been capable of causing a large explosion in mobile technology that far exceeds the growth of any other computing cycle. Therefore, based on the level of innovation and adoption of mobile devices today, mobile web will be bigger than desktop internet usage. Mobile learning is an experience and learning opportunities can occur anywhere, at any instant, request access to the private world filled with tools and resources that are preferred for making knowledge independently, curiosity, and collaborate with others. Mobile learning implies adaptation and building on recent advances in mobile technology through the use of creative and appropriate, define the responsibility of teachers and students, and blurring the lines between formal and informal learning. It embodies and facilitate an understanding of what it means to be a lifelong learner and what it takes to thrive in today's workplace (McQuiggan, McQuiggan, Kosturko, and Sabourin, 2015).

Open Education

The phenomenon of using Free and Open Source Software in education has increased significantly in the last decade. Use of this software further developed for the delivery of materials available to the public either part or full program of higher education institutions, commonly called the "Open Course Ware" (OCW). As an example of this practice is iTunes U is most widely used to carry and manage classes together on the iPad. iTunes U can facilitate students to do homework, as an integrated grade book, and private discussions. With iTunes U how simple to give a lesson, class assignments, and stay connected to all of the iPad each user. In addition, also known by the term "Open Educational Resources" (OER) are digital materials are offered for free, free, and open to educators, students, and learners to use in teaching, learning, and research.

Only a few years, higher education institutions have established a network-delivery e-learning is very large. Various universities/colleges have created their own iTunes U site to manage, distribute, and control access audio and video content of education and other resources for current students as well as the broader Internet. The online service at no cost to those who upload or download material. Content includes

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course lectures, language lessons, lab demonstrations, and so forth. OER Commons (http://www.oercommons.org/) and the OCW Consortium (http://www.ocwconsortium.org/) have collected several sources and relevant information.

Self-Learning

Learn individually and independently may possibly occur more effectively and facilitated with the use of multimedia and web technologies that are increasingly sophisticated, communicative, and keep new, thus making it an alternative to formal and informal training learning online. For example, Program Electronic Performance Support System (EPSS), which in this context is described consisting of a computerized templates that provide the framework for students to design and use and cognitive behavioral intervention (Mitchem, Fitzgerald, & Koury 2016). This approach is very fitting with the current emphasis on strategy behavior support proactive, as Lenz & Deshler (2004) stated the same thing and added that it will also be able to contribute to the learning of social skills, because they are focused on: teaching thinking skills, using an approach that positive, providing training, facilitating individually, and monitor feedback and goal setting.

Virtual Learning

Rich interaction and communication environment to offer Web 2.0-based virtual worlds have the potential to provide an opportunity to teach, learn, and training to improve communication skills and problem-solving skills, and low-risk environment and attractive as an alternative to the real world. A virtual world usually refers to an online community that often takes the form of a computer-based simulated environment where users can interact with one another and use and create objects.

DISCUSSION

Trends and issues research on e-learning in education and training from different settings and tells a story that vary equally as much regulation, methods, and learning needs of learners in each study. E-learning research has had a colorful story and interesting to discuss. The growth of online resources and Web 2.0 technology advances that impact on education and training, as well as changes in e-learning itself. The previous section presents some opportunities and key practices in e-learning. As shown in the presentation of the material keselurahan this article, e-learning from LMS to shift the focus of the virtual learning from formal learning to informal learning. Formal learning which we know usually refers to a school system with a structured hierarchy from primary schools to colleges and organized packaged in the form of education and training of technical and professional. While informal learning, referring to the lifelong learning process in which individuals acquire the values of attitudes, knowledge, and skills of everyday experience interacting with the learning resources that exist in the environment. Research shows that the most learned to have a real impact on human performance tend to be informal. Inevitably, in the context of organizational learning culture based technologies these days have contributed to an increase in informal learning among knowledge workers now. Thus, the current and emerging technologies provide greater opportunities and possibilities for e-learning.

CONCLUSION

Through the trends and issues of the latest research on e-learning, we see that rapid technological change has encouraged learners and workers are increasingly happy to continuously learn without being tied to formal education because it can be done anywhere, anytime, and in ways more fun, with online tools they have today.

As E-learning 2.0, the definition of e-learning has shifted once people just learning the computer device or desktop. Now all the electronic devices even mobile phones can be a medium of learning for someone to learn for connecting with the Internet so that learning can happen in a person independently or jointly with the community.

As the definition of e-learning itself shifts, trends, research shows the need for different styles of forms of education and training to be taken can be seen. Forms of education and training has evolved from focusing on formal shape to form informal which can further encourage the learners life long for anyone who likes to learn. It is therefore important that developers and users of e-learning are aware of how the use of web precise and meticulous affects the successful implementation of e-learning itself.

REFERENCES

Cavus, Nadire. (2015). Distance Learning and Learning Management Systems. *Journal of Procedia Social and Behavioral Sciences: Vol. 191*(pp. 872-877). Retrieved from http://www.sciencedirect.com/science/article/pii/S1877042815028712.

Downes, Stephen. (2005). *E-learning 2.0*. eLearn Magazine. Retrieved from http://elearnmag.acm.org/featured.cfm?aid=1104968.

Graham, C. R. & Dziuban, C. *Blended Learning Environments*. Retrieved from http://aect.org/edtech/edition3/ER5849x_C023.fm.pdf.

Lenz, B., K. & Deshler, D., D. (2004). *Teaching Content to All: Evidence-based Inclusive Practices in Middle and Secondary Schools*. Boston: Allyn and Bacon.

Mitchem, K. Fitzgerald, G. & Koury, K. (2016). *Special and Gifted Education: Concepts, Methodologies, Tools, and Applications*. Hershey: Information Science Reference.

McQuiggan, Scott. McQuiggan, Jamie. Kosturko, Lucy and Sabourin, Jennifer. (2015). *Mobile Learning: A Handbook for Developers, Educators, and Learners*. New Jersey: Wiley.

O'Hear, Steve. (2006). *E-Learning 2.0-How Web Technologies are Shaping Education. Readwrite.* Retrieved from http://readwrite.com/2006/08/08/e-learning_20/.

Rahman, N., A., A. Hussein, N. & Aluwi, A., H. (2015). Satisfaction on Blended Learning in a Public Higher Education Institution: What Factors Matter?. *Journal of Procedia Social and Behavioral Sciences: Vol. 211* (pp. 768-775). Retrieved from http://www.sciencedirect.com/science/article/pii/S1877042815054476.

ISBN 978-602-73030-1-0

Yang, Harrison, Hao. (2013). New World, New Learning: Trends and Issues of E-Learning. *Journal of Procedia Social and Behavioral Sciences: Vol. 77* (pp. 429-442). Retrieved from http://www.sciencedirect.com/science/article/pii/S1877042813005351.

Zhu, Yonghai. Nie, Zhuming. Zhang, Shuyu. & Chen, Shugang. (2011). Analysis on Research Framework of Corporate E-learning. *Journal of Procedia Environmental Sciences: Vol. 11* (pp. 525-529). Retrieved from http://www.sciencedirect.com/science/article/pii/S1878029611009066.

TRENDS AND ISSUES IN E & M LEARNING RESEARCH FOR EDUCATION: ANDROID BASED VIRTUAL LABORATORY OF CHEMICAL EDUCATION

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Abstract

At this time, technology advances rapidly including the progress in the use of mobile phone based Android. Among high school students also have using android based mobile phone in this modern era. In this article will discuss alternatives uses android-based virtual learning, to improve the quality of science teaching, especially at chemistry. In this application in addition to introduction of practical chemistry tools, the students will be encouraged to perform a simulation lab in accordance with actual practice. This application also have learning materials, practical chemistry formulas, practical exercises, cases of real chemical reactions in life, as well as virtual lab menu that can visualize the real chemical laboratory.

This application is expected to greatly assist students in the learning process while enhancing competencies and learning outcomes. For the teachers, this application is expected would overcome the problem of limited time to teach the students through more effective and efficient process. While the school, center and local government, this application is expected to decreases the education cost, or further optimize the education finance. The purpose of writing on this article is to review the virtual lab to help the effectiveness of learning. This article is using study of theory from various literatures and also the result of previous researches. The results showed that the virtual lab became a part of the learning in the 21st century, and proved improving the quality of learning.

Keywords: Android, Applications, Chemistry, Mobile Learning.

PRELIMINARY

Chemistry in high school is a subject that must be taken for those who take Mathematics and Science Program. Chemistry is one of the subjects that never learned in middle school but will be tested in the National Exam. Many complaints from students that arise because they can not follow the lesson well because of the difficulty in understanding material, and for teachers is the time limitations to teach students because too many learning materials in the curriculum is one of the obstacles in achieve the learning outcomes of chemistry. One way to help improve the students understanding, as well as reducing the time burden of teachers in presenting learning material, as well as lower the education cost for schools and government is the Android-based virtual learning. Students can learn the material without having to carry heavy books so that they can learn anywhere and anytime.

THEORITICAL REVIEW

Although there are many trends in the use of technology in learning, but there are four of innovative technologies which should be used by the developers/instructional designers for creating a richer learning experience and actualizing significant improvements in productivity as follows (Joel Duncan,

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Wednesday, June 08, 2016): (1) Makes three-dimensional (3D) design: a creation of physical object in 3D models. This technology can be applied to variety of subjects, such as science, history, mathematics, and architecture. Act to bridge the gap between digital learning environment and the physical environment. Students can see, touch and interact with their creations just like real life. Although the initial cost of manufacture and maintenance for 3D is expensive, but it can lead to significant cost and time saving in a long time. For example practice in the lab, it is better using a 3D models rather than the students using the original tools and material with high cost and so much time needed to prepare it; (2) Reduce the risk with virtual reality (VR) in the form of simulation. It offer the developer to create a more attractive and realistic learning experience that cannot be gained at the textbooks, video, and other media types. One of the most effective ways is VR technologies in e-learning are to teaching a high-risk assignment in the form of simulation; (3) Accessibility with responsive design and multi device. Learners should have more access to any program, anytime from multi device. The use of a responsive e-learning authoring tool is important. They giving power to design your courses so that all the elements automatically adjust with the device used. Buttons, menu, pictures, videos, and font sizes in accordance with the learner's browser dimension, allowing for the best experience of the content; and (4) Stability, security, and scale: Cloud Storage and E-Learning. Interactive e-learning program depends on multimedia. Although when designing e-learning program we aim to optimize size of images, video, and other file formats, it will requires a lot of storage space. Storage Cloud is a service that allows data to be backed up, maintained, and managed remotely. The files stored online so the users can access from any location if they have internet connection. Cloud storage is another technology that facilitates location-independent learning. Program and files can be accessed and updated remotely from multiple devices. Some students are in a different places with different devices can also access the same thing.

Four of these technologies contribute to improve the effectiveness of e-learning programs, especially in virtual learning. Expand the student's engagements and access in learning. With four integrated technologies mentioned will act as a bridge between learning with real life experiences. And through this tech-learning is about how the students experiencing things that should have been fun without excessive risk. There are currently hundreds of educational organizations have build a learning community or simulation with a commercial virtual content creation, such as community educator AECT in Second Life, or teachers that participate in Massively Minecraft Union in Minecraft. In this virtual, the technology provides a shell in which intention of writing/design is left open and expected be maximized by learning developers and others who want to create their own virtual environment. In this case the teaches at the user can select which application that widely available and then adjust the desired content suitable the objectives to be achieved in learning.

Today mobile technology offers a spectrum tools for teachers, educational opportunities as well new options for students in learning technology partnership. Empowered with interactive multimedia presentation, mobile technology allows the delivery of variety multimedia content such video, graphics, and integrated media, and when design correctly and within a context would be a useful resource for effective learning for students all the time inside and outside the classroom (Churcill, Jie Lie, Chiu 2016, vii).

The most important aspect from effective mobile learning this time is the integration of mobile technology, social media, and learning design, a learning design should serve as the strong intervention strategy to change the mindset of the teachers to be more productive. (Churcill, Lu and Chiu 2014) Learning design, emphasize the four core components for an enabled mobile learning environment, the resources, activities, support and evaluation; RASE Learning. (Resources–Activity–Support–Evaluation, Churchill, 2016: 7). It was explained that the main idea in the design of learning resources are not sufficient for the achievement of learning outcomes. In addition to resources, a teachers needs to consider the following: (1) the activities for students to engage in the use of resources and tasks such as experiments and solving problem through active experiences to the achievements of learning outcomes, (2) Support to ensure that students provide assistance, and if possible with a tool for independently or in collaboration with other students, to solve the difficulties that arise, and (3) Evaluation to inform students and teachers about the progress and to serve as a tool to understand of things to be done in order to ensure the learning outcomes achieved.

Furthermore, each of the four RASE component discussed is the source include (a) the content (Digital example media, textbooks and lectures by teachers), (b) material (chemical example for trial, paint and canvas) and (c) tools are used for students working on their activity (ex: laboratory, brush, calculator, ruler, statistical analysis software and word processing software). When integrating the technology resources in teaching, it should be done in a way that leads the students to learn with, not only learning from the resources. Activities are the important component for achieving the learning outcomes. We provide students with experiences in which learning takes place in the context of the emerging understanding, testing ideas, generalization and use of knowledge. An evaluation of the activities involved learners in tasks, and develop artifacts are evidence of their learning. This evidence of student learning allows teachers to monitor student progress and provide further guidance formative to help improve student achievement. The purpose of the support is to provide students with the essential scaffolding while enabling the development of learning skills and self-reliance. Support may anticipate difficulties of students, such as understanding an activity, using a tool or working in groups. In addition, teachers should track and record the ongoing difficulties and issues that need to be addressed during the study, and share with the students. Four modes of support are possible is: teacher-student, student-student, student-artifact (additional resources) and student-community (seek help from another people and resources). Support can take place in classroom and online environments as via forums, wikis, blogs, and social networking places. Also, support can be seen as anticipating of the students needs.

Virtual world can be used to create a learning space that applies to almost all disciplines, subjects or areas of study (Johnson, Levine & Smith). In their meta-analysis of 470 studies, Hew and Cheung (2010) identified three uses of virtual world in K-12 and higher education environments: (1) the communications space, (2) physic space simulation, and (3) space experience. Their research show that K-12 students are likely to use virtual world because they can fly and move freely in 3D space, meet new people, and experiencing virtual field trips and simulation. Similarly, adult learners and teachers have reported enthusiasm when learning in immersive space (Dickey, 2011).

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Design of virtual learning can also improve the identity exploration of the participant (1993 Laurel & Murray 1997). In the virtual lab, the students can do the replacement of the substances to be reacted, changing the concentration or planning a different kind of reactions, reaction formation and others. This will trigger the creativity of the students without causing risk of huge loss or run out of chemical substance. Students have an opportunity to try and find new knowledge in the experiment.

Because the communication space is virtual and the player is more than one (multi), this provides an alternative delivery format of distance education (DeFreitas, et al., 2010). Opportunity to interact with other user from the globe with depth setting together can enhance cultural sensitivity and awareness of global issues. They can interact in solving problems in learning and another global problem. They can communicate with their community around the globe through personal communication mechanisms, group, bulletin, global conversation, and other alike. Communication mechanisms in the outer world can through social media, twitter, blog, web sites, etc. When used effectively, this communication options can support increased engagement and motivation, action groups, individual transformation, and share meaningful opportunities. However, if the guidance is not provided for user, the public will be difficult to find and learn the norms because the participation needs time. Virtual technology lab is also effective when the students need to repeating practicum and using so many chemical substances that reacted. Beside, this virtual lab decrease or eliminate the risks of the chemical substances if inhaled or ingested, or cause of fire from the flammable chemical substances.

The evaluation should be done by the teacher in a virtual lab's activities. Automated valuation directly do to do because of the trail of information carries by all the students recorded in the recording process is performed. But if students are using android, the teacher still evaluate the assessment activities directly through observation and assessment of the result from student reports and discussion made during a face-to-face with the teacher in the classroom.

From the result of some research on some applications that used in the learning process at intermediate level, it is concluded that the use of the application has been boost student students in learning. And it has been proven effective in improving student learning outcomes. So it is expected that teacher's chemistry teachers can use this application in chemistry learning. Virtual learning in addition to many advantages and strengths, both in the process and in the results of their study, there are drawbacks and we must be aware that the success of instructional designers often feels uncertain about the best design to suitable for a particular material. How to design a learning models that appeals to students and able to improve students motivation and also easily reached destination to learn well. The use of time, the cost required to learn the new technology, privacy safety of students, as well as institutional obstacles in everything is a challenge (Dawley, 2009).

Technical issues that must be considered by the teachers/instructional designer in virtual learning is also dependent on the technical problems with equipment, Internet connectivity, scalability of the platform, and a protective institutional (DeFreitas, et al., 2010; Hew & Cheung, 2010; Warburton, 2009). Students will also be revealed (it must be prepared by the teachers/designer) concern regarding the need to type fast and the requirement to immediately formulate

responses in a chat communication. Special attention for K-12 students is the issues of student safety and privacy of data (Dawley, 2009). Other challenges include: (1) Collaboration: confidence, eye contact, and a virtual presence is a critical component to building effective collaboration. A communication mechanism is out of sync as a discussion forum or wiki needed to promote sustainable persistence for group activities, especially when the user lived in several times zones. Collaboration might need a scaffold the goal; (2) Time: Simple task, such as talking =, walking, at changing clothes, it can take a long time to learn to do it efficiently. Instructor must learn to design and technical management skills; (3) Economy: Virtual learning and simulation may be based on various forms of business models, often requires users to purchase premium rate services, or participate in activities in the world or work that will generate revenue for vendor; (4) Standard: Lack of open design standards creates problem for developers who want to integrate technology and another resources; and (5) Persistence and social discovery: Unlike other social networks such as Facebook, most virtual learning/virtual lab hide larger social networks than users keeping them at the center of the network; students cannot see friends of their friends.

In the design of instructional designers/teachers are in demand should be thorough in selecting a virtual application that matches the material and characteristics of students as users. Besides, teachers also should adjust existing orders in the average virtual lab application use English or a specific code. In here also demanded hard work to translate the language or code that is not familiar to the students. Some researchers have developed a typology for identifying various design options (Messinger, Stroulia, and Lyons, 2008) Dereits,. et al., in 2010 proposed four dimension framework for consider the design and development of the virtual learning: (1) Students (their profile, roles, and competencies); (2) Pedagogical models used (associative, cognitive, and social); (3) Used representation (loyalty, interactivity, and engagement); and (4) Context (environment, access to learning, supporting resources) in places where learning occurs.

Examples of application that been researched and applied in some intermediate schools in Indonesia, as follows: (1) Learning mobile application system of the periodic system of chemical elements. Stages for making the application are planning, analysis, design, and implementation. This application has been tested into face Smartphone and the entire interface and the features work well in all of the devices. The application is in apk format with 13.12 MB (Syarif, 2014); (2) Smart Book and android-based virtual lab application with Eclipse software for create and editing script, also Corel Draw X5 and Photoshop CS6 for image processing (M. Hidayatullah, 2015); and (3) Design of Android-based Application of Learning Physics for High School tells that the application using Eclipse 3.7 Indigo software with support by Corel Draw X5 and Core Photo paint for the image processing. Development of the learning media is done in several stages: data collection, system design, system manufacturing, system testing, and system implementation.

CONCLUSION

The technological developments show promises of continuous use of virtual learning and virtual lab. Virtual learning technology experiencing a massive growth, with new market sectors in education sector, the user appears as the technology evolves itself. Commercial opportunities continue to grow, so does the relationship

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for educational purposes. The growth trend of virtual technology includes more cross-platform development between virtual learning and entertainment (TV, movies, books, and toys), a space for visual artist and celebrities, content creation and science fiction for adult, and social networking integration addition for worldwide platform.

As increasing of enrollment in online education, and an emphasis on a mixture of education continues to grow, learning virtual technology will play an important role and evolve to improve the experience of virtual learning. These developments have implications for education professionals: teachers need training in pedagogical and technical skills; instructional designers need professional development in the use and implementation proper immersive technology; Design-based researches need to training in data collection methods and strategy mix for data mining; and network administrators will have to work to overcome the technical limitations of bandwidth, access, firewall, and computers are outdated.

The emphasis in education shifted away from memorizing facts out of context and towards personalized learning experience to develop a human who can solve problems in variety of scenarios, immersive environment can support this goal. As design studies began to shift away from random controlled trials on the used mixed design research methods that integrate observation and data mining. Expand our knowledge about how students develop, as well as our knowledge about build a better learning system. And one of the alternatives in learning science can be done with a virtual laboratory.

REFERENCES

Churchill, daniel; Jie le, Thomas K.f. Chiu. (2016). *Mobile learning Design Theories and Applications*; Lecture Notes in Educational Teaching.

Dawley, L. (2009). Social network knowledge construction: Emerging virtual world pedagogy. *On The Horizon: Vol. 17, No. 2* (pp. 109–121).

DeFreitas, S., Rebolledo-Mendez, G., Liarokapis, F., Majoulas, G., & Poulovassilis, A. (2010). Learning as immersive experiences: Using the four-dimensional framework for designing and evaluating immersive learning experiences in a virtual world. *British Journal of Educational Technology: Vol. 41, No. 1* (pp. 69–85). DOI:10.1111/j.1467-8535.2009.01024.x

Dickey, M. (2011). The pragmatics of virtual worlds for K-12 educators: Investigating the affordances and constraints of Active Worlds and Second Life with K-12 in-service teachers. *Educational Technology Research and Development: Vol. 59, No. 1* (pp. 1–20). DOI: 10.1007/s11423-010-9163-4.

Duncan, Joel. (2016). Article: *4 Tech Trends That Can Help You Design More Effective E-Learning***.**

Hew, K. F., & Cheung, W. S. (2010). Use of three-dimensional (3-D) immersive virtual worlds in K-12 and higher education settings: A review of the research. *British Journal of Educational Technology: Vol. 41, No. 1* (pp. 33–55). DOI: 10.1111/j.1467-8535.2008.00900.x

Hidayatullah, Muhammad. (2015). *Aplikasi Buku Pintar & Virtual Lab Kimia untuk SMA kelas X berbasis Android Mobile*.

Laurel, B. (1993). *Computers as theatre***.** New York: Addison-Wesley.

Pena, Alejanddro. (2016). *Mobile Ubiquitous and Permasive Learning" Fundaments, Applications, and Trends*. Springer

Sudarmo, Unggul. (2013). *Kimia untuk SMA/MA Kelas xi.* Jakarta: Penerbit Erlangga.

Susanto, Stepanhus Hernawan. (2011). *Mudah Membuat Aplikasi Android.* Salatiga: Andi Offset, Yogyakarta.

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THE CONNECTION OF USING E-LEARNING (WEB CENTRIC COURSE) WITH STUDENT COMPREHENSION IN LEARNING IPA TERPADU

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Abstract

Learning is an interaction between teacher and student in studying area that planned as well until reaching the aim of learning. *Web Centric Course* is using internet which integrate between long distance learning and face to face learning. The purpose of this research is to know, is there connection of using e-learning (web centric course) with student comprehension on learning IPA terpadu. The method that using in this research is correlation method, the method purpose to investigate variation which had a factor related the factor of the group based on coefficient of correlation. This research is done in MTs Negeri 1 Cirebon with sample in one class. The used Instrument is questionnaire and objective test (multiple choice and essay). The used tabulating of data is accounting of correlation statistic and correlation experiment with T- Experiment. The testing hypothesis is done with comparing method between T-hitung and T-tabel on standard credibility 95% with free level: 36. Based on hypothesis and analysis data, gotten a conclusion that: (1) there is significant connection and positive between using e-learning (web centric course) with student comprehension on the learning IPA terpadu by r = 0,68; (2) big contribution or influence e-learning (web centric course) with student comprehension on the learning IPA terpadu are 46,24%, the balance decided by other factor.

Keywords: e-learning (web centric course), student comprehension, the learning IPA terpadu

PREFACE

Background

Learning is an interaction between teacher and student with studying area which planned as well until reaching the aim of learning, is ability that hope had by student after learning. Furthermore, Hamalik in Sanjaya (2009: 6) clarify that learning is a combination which comprised human substance, material, facility, equipment, and procedure that influence each other.

Now the problem of education in Indonesia is the learning too dominate by teacher (teacher centered). Further in this IPA terpadu needs more comprehension and many students thought that this lesson is difficult lesson, beside of that the used model of learning is less espoused for learning involve student actively. *Web Centric Course* integrates between long distance learning and face to face learning that can help to increase student comprehension.

Problem Formulation

The problem of research are (1) how to use *web centric course* for learning?; (2) How is comprehension of student in learning IPA terpadu?; and

(3) is there any contribution with using *Web Centric Course* to student comprehension in learning IPA Terpadu.

The Purpose of Research

The purpose of this research is to know (1) the using *web centric course* in learning process, (2) the student comprehension in learning IPA Terpadu, and (3) the contribution of using *Web Centric Course* to student comprehension in learning IPA Terpadu.

Hypothesis

Based on Description Theory, and planning explained, so the research hypothesis are (1) using *Web Centric Course* can espouse a learning process, (2) increase student comprehension in learning IPA Terpadu, and (3) there is contribution of using *Web Centric Course* to student comprehension in learning IPA Terpadu.

LITERATURE REVIEW

Web Centric Course

Haughey cited Hardjito, (2004:18) using internet for learning can be done in 3 methods, that are:

(1) *Web Course,* it is all of studying, discussing, consultation, assignment, exercise and examination told in internet. This activity does not need meeting for learning and evaluation. Every learning process is using internet facility, such as *e-mail, chat rooms, bulletin board, online conference,* and *link* from studying source in internet (*e-book, e-library)*
(2) *Web Centric Course,* it is some material learning, discussion, consultation, assignment, exercise told with internet. Although not all learning process is done with meeting process, the presentation of meeting is a more little than learning process in internet.
(3) *Web Enhance course, the usage internet to increase quality of learning process.* The main activity is meeting face to face. Using internet just espouse learning face to face.

The application *Web Centric Course* is done with using ICT, because the technology of computer gives a new chance for learning. Computer can use effectively for developing *higher-order thinking skill* consist of definition skill, appreciate information, problem solving, and getting conclusion.

Student Comprehension

Mulyasa (2005:78) clarify that the comprehension is cognitive and affective which have every individual. With comprehension, students are asked to prove that they can understand of the simple connections among the fact or concept. The learning is more active to contribute learning process. The interaction between teacher and student is closer so teacher is knower his student well. Hamzah B. Uno. 2009:138 there are six Categories (cognitive) in

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the value of studying. Those are (1) Memory, (2) Comprehension, (3) Application, (4) Analysis, (5) Synthesis, and (6) Evaluation.

IPA Terpadu

IPA Terpadu is learning which integrate some standard competent and basic competent (SK-KD) from IPA (physic, chemistry, biology) in one learning integrated. The explanation has contains mean connect IPA with the other lesson (Carin in puskur 2007:236).

Sub lesson in IPA is coordinating some discipline lesson such as biology, physic, chemistry, geology and astronomy. The benefit of integrate learning are (the center of curriculum , 2007);

1. Thrifty time, because three (physic, chemistry, biology) in one. Overlapping material can decrease in fact that will be lost.
2. Increase mind skill, because student will face with the argument or thinking that larger and deeper
3. Increase cooperation between teacher and sub lesson.

METHODS

The used method in this research is correlation research which purpose to investigate variation which had a factor related the factor of the group based on coefficient of correlation. The used Instrument is questionnaire and objective test. Attitude scale that use for measuring student view about using *Web Centric Course* is Likert scale with 5 alternative answers. The objective test here is multiple choices with 4 alternative answers and test accommodates about student comprehension.

There are three steps in the realization of Research. Those are (1) preparation, (2) realization, and (3) tabulation. Accounting statistic to get correlation coefficient from variable to get thorough furthermore getting test in significantly on the formula T. in tabulating and analysis of data are using normal distribution test, hypothesis test, correlation coefficient test, significant test, and determination coefficient test.

RESULT

The using Web Centric Course

The sample of this research is 38 students of 9 grades in MTs Negeri 1 Cirebon. Collecting data with questionnaire (attitude scale) is to know the response of using Web Centric Course and objective test (*post test*) is to know the result of student comprehension.

Table 1: Response Web Centric Course

Statistic Nomination	Score
Min	55
Max	77
N	38

X	66,47

The average score is 66,47 (88%) in deviation standard 6,21. From the result rise that using teaching multi methods (speech, demonstration, experiment) can be include "great" because 88% in interval 80-100 (Arikunto, 2005: 251).

The data of the result student comprehension

Table 2: The data of studying (objective test)

Statistic Nomination	Score
Min	10
Max	27
N	38
X	18,45
SD	3,10

The average is 18,45(72%) in deviation standard 3,10. From the result rise that student comprehension can be include "good" because 71% in interval 60-80 (Arikunto, 2005: 251)

The contribution of using Web Centric Course to student comprehension in IPA terpadu based on correlation coefficient are 0,68 that means having high and strong connection. From the result of determination coefficient accounting KD = r2 x 100 % are 46,24% that means using Web Centric Course give contribution to student comprehension in IPA terpadu as big as 46,24% the balance (53,76) is decided by another variable.

The connection of Web Centric Course to The Student Comprehension

Using Web Centric Course is very needed in learning process because can help the students to increase their attention to learning material so can be increase the result of student learning. The learning result (student comprehension) connect to cognitive aspect which include observe skill, memorize, understand, apply, analysis, synthetic and create. The first process of cognitive step is begun how student can understand a concept.

Quantitatively, understanding concept is measured as result. The assessment is include an output of studying inside cognitive. Looked from the cognitive concept, understanding concept, comprehension concept skill it can be effect in understanding of (1) interpretation, (2) imitation, (3) clarification, (4) enclose, (5) conclude, (6) compare, and (7) explain.

Effectiveness of using Web Centric Course increases an interest student based on data 88%. The founding of effectiveness value appropriate with the research from Kurnniahayati and Syamsurizal (2007) clarify that interesting student in studying increase after using *Web*. Furthermore Nurhikmah (2010) effectiveness in using *Web Centric course is higher than using* traditional method.

The inclined of interesting student in using *Web is high positive correlating* with accomplishment studying. Miarso (2004) argue that the function of media is be able to come up a new wishing and interesting for student, media can be able to come up motivation and stimulate to study.

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Ahmadi and Prasetya (1997:103) clarify that one of factor can influence the degree of student comprehension is interesting.

CONCLUSION

Based on the research, the writer got conclusion like these:

1. Using *Web Centric course is very good, because the av*erage score that gotten is 66,47(88%) in interval 80-100 that means using *Web Centric course can* give many contribution in learning process so it can help teacher and student going to be better learning process and fun.
2. Student comprehension which using *Web Centric course* is good, because the average score is 18,45(72%) in interval 60-80 meaning is giving opportunity for student to active in learning process so it can increase the result to be better.
3. The big contribution of using *Web Centric course* to the activity and comprehension in the lesson of IPA Terpadu is 46,24% the balance are 53,76% decided with another factor. In Statistic, it can be clarified r= 0,68. This agree with hypothesis test using correlation significant test, so Ho is refused and Hi is received. Until there is contribution of using *Web Centric course* to student comprehensive in the lesson of IPA terpadu.

REFERENCES

Ahmadi and Prasetya. (1997). *Pemahaman Siswa dalam Proses Belajar.*

Arikunto, Suharsimi. (2002). *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara edition.

_____. (1998). *Prosedur Penelitian*. Jakarta: Rineka Cipta.

Arsyad, A. (2007). *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada.

_____. (2004). *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada.

Darmawan, D. (2012). *Inovasi Pendidikan*. Bandung: PT Remaja Rosdakarya.

Depdiknas. (2007). *Panduan Pengembangan Pembelajaran IPA Terpadu*. Jakarta: Puskur, Balitbang Depdiknas.

Dimyati and Mudjiono. (2006). *Belajar dan Pembelajaran.* Jakarta: Rineka Cipta.

Dunne, Richard. (1996). *Pembelajaran Efektif (Terjemahan)*. Jakarta: Grasindo. Heinich, et al., 1996 Instructional Media and Technologies for Learning. New Jersey: Printice-Hall, Inc.

Khairani, Makmun. (2014). *Psikologi Belajar*. Cetakan kedua. Yogyakarta: Aswaja Presindo.

Loekmono. (1994). *Belajar Bagaimana Belajar*. Jakarta: BPK Gunung Mulia.

Miarso, Yusufhadi. (2004). *Menyemai Benih Teknologi Pendidikan*. Jakarta: Prenada Media.

Mulyasa, E. (2005). *Menjadi Guru Profesional*. Bandung: PT. Remaja Rosdakarya.

Munadi, Yudhi. (2013). *Media Pembelajaran*. Jakarta: GP Press.

Popham, W. James. (2003). *Teknik Mengajar Secara Sistematis* (Terjemahan). Jakarta: Rinekacipta.

Sanjaya, Wina. (2009). *Strategi Pembelajaran Berorintasi Standar Proses Pendidikan*. Jakarta: Kencana Prenada Media.

Slameto. (2003). *Belajar dan Faktor-Faktor Yang Mempengaruhi*. Jakarta: Rineka Cipta.

Sugiyono. (2010). *Metode Penelitian Pendidikan.* Bandung: Alfabeta.

Smaldino, E. Sharon, et al. (2008). *Instructional Technology and Media for Learning*. Upper Saddle River, New Jersey Columbus, Ohio. Ninth Edition

Soekartiwi. (2004). *E-learning untuk Pendidikan Khususnya Pendidikan Jarak Jauh dan Aplikasinya di Indonesia*. Jakarta Mozaik Teknologi Pendidikan, Prenada Media.

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TEACHING AND LEARNING RESEARCH IN EDUCATION AND TRAINING

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INFLUENCE MODEL TYPE COOPERATIVE LEARNING JIGSAW ON LEARNING OUTCOMES IN PHYSICS CLASS X SMA STATE LESSON 2 LUBUKLINGGAU YEAR 2014/2015

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Abstract

This thesis entitled "Effect of Guided Learning Cooperative Model In *Jigsaw* Type the Physics Student Learning Outcomes Class X SMA Negeri 2 Lubuklinggau Academic Year 2014/2015". The research is motivated by the low physic students learning. The objective of this study was to find out the result students learning of physics study at the tenth grade in SMA Negeri 2 Lubuklinggau in academic year 2014/2015 after implemented the Cooperative Model In *Jigsaw* Type Significantly was complete. The kind of the research is quantitative study with experimental research methods with the control group and experimental design. The population of this study was the entive tenth grade in SMA Negeri 2 Lubuklinggau in academic year 2014/2015. Two classes taken at randomly as experimental class was X.1 and X.3 as the control class. The data was collected using test. To analyze the data used t test. Based on the result of the data analysis the data of post-test experimental class and control class with α = 5% or 0,05 was $t_{obtained}$ = 3,12 and t_{table} = 2,00, because $t_{obtained} > t_{table}$ so H_0 resected and H_a accepted. It means that the average value of experimental class greater than the average value of control class.

Keywords: *Emotional intelligence, learning achievement*

INTRODUCTION

Education is one of the main factors to achieve quality public. Various efforts to improve the quality of education have been carried out although the results do not meet expectations. One reflection of the quality of education in schools is the result of learning achieved by students. Thus the learning outcomes of students in certain subjects are one indicator of the quality of education in the school. In improving the quality of education, physics as one of the subjects taught in formal education plays an important role. Recognizing the importance of physics as one pillar of the development of science and technology, physics learning outcomes at every level of education deserve serious attention.

The learning outcome is largely determined by the quality of the learning process experienced by students at every level of education. To achieve the desired goal, teachers are expected to apply appropriate learning models to convey the subject to be submitted to make please physics students through the learning process effective, efficient, and meaningful. In order to reach the expected educational goals.

Based on interviews conducted by the author with Mr. M. Akhirul, S.Pd. physics teacher SMA Negeri 2 Lubuklinggau, he said that the results of studying physics students in the class X is still relatively low. It can be seen from the thoroughness of the daily tests of students in class X only reached 43.65% with an average value of 78.63 from the KKM 75. It shows that 56.35% with an average value of 45.35 153 number of students in class X has not been reached KKM, so they must follow remedial.

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All this is not merely the fault of students but also because of the use of learning models that are less precise and less attention to skills during the learning process of physics. Therefore we need an action to improve learning processes and learning outcomes expected an increase in physics. One model that is expected to address the type cooperative learning model jigsaw.

According Jhonson in Trianto (2009: 57) states that the main objective is to maximize learning cooperative learning students to increase achievement and academic understanding individually or in groups. Rusman (2011: 218) Jigsaw cooperative learning model is a cooperative learning model that focuses on group work of students in the form of small groups. According to Nisa (2013: 06) in theory, cooperative learning jigsaw effective to increase the level of achievement of learning outcomes. This is according to research conducted by Khoirotun Nisa concluded jigsaw with students getting their cooperative learning increase the average score post-test.

Based on the results of the above description, researchers interested in conducting a study entitled "The Effect of Cooperative Learning Model Learning Outcomes Physics Jigsaw against Class X SMAN 2 Lubuklinggau in the academic year 2014/2015".

Based on the background described earlier, then that becomes a problem in this research is "Is there any influence on the results of the learning model Jigsaw learn physics class X SMAN 2 Lubuklinggau 2014/2015 academic year?".

Based on the formulation of the problem, this research aims to find out the results of learning physics class X SMAN 2 Lubuklinggau in the school year 2014/2015 as applied learning models significantly Jigsaw is complete.

Expected results of this study can provide significant benefits to all parties, such as:

a. For Schools
   As an input to the development of teaching programs in schools and can increase courage in asking, answering and express opinions give meaning to student learning and improve student collaboration.
b. For Teachers
   As the process and the results of research into the input to broaden their horizons and try a learning model Jigsaw in learning physics as an alternative to improve students' understanding of the concept.
c. For researchers
   As a direct experience in the implementation of learning model Jigsaw and determine their effectiveness in developing the ability of learners in solving problems.
d. For student
   As motivation to foster the spirit of cooperation among students and help students understand the concepts of physics are intact and properly so as to improve students' understanding of the concept.

LITERATURE

Understanding Learning

According Sudjana (in Rusman, 2011: 1), learning is essentially a process of interaction to all situations that exist around the individual. Learning can be viewed

as a process that is directed to the purpose and process of doing through a variety of experiences. Meanwhile, According Slameto (2010: 2), learning is a process that attempt to obtain a new change in behavior as a whole, as a result of his own experience in interaction with the environment.

According Oemar Malik (2001: 28), learning is a process of individual behavior change through interaction with the environment, learning is not a destination but a process to achieve the goal. According Trianto (2010: 17), learning is defined as the process of behavior change remains from not knowing to knowing, of not understanding be understood, of less skilled become skilled, and from old habit to new habits, as well as benefiting the environment and the individuals themselves.

Based on the above opinion can be concluded that learning is a process of individual behavior change as a result of experience in interaction with the environment.

Definition of Learning

Rusman (2010: 134), learning is basically a process of interaction between teachers and students, either direct interaction such activities face to face or indirectly, by using a variety of instructional media.

According to Nur (2015: 1), learning has meaning their teaching and learning activities, as well as those who teach is teachers and the learning is student-oriented activities to teach the material oriented to the development of knowledge, attitudes, and skills of students as learning objectives. In the learning process will include various other components, such as the media, curriculum and learning facilities.

According to Anwar and Harmi (2011: 23), learning can be defined as the process of cooperation between teachers and students in the use of all potential and existing resources. Good potential that comes from within the students themselves, such as interests, talents, and abilities possessed base. Including learning style and the potential that exists outside students. Such as the environment, facilities and learning resources in an effort to achieve specific learning objectives.

Some of these opinions, it can be concluded that learning is a learning process in which the interaction of teachers and students and among students to achieve a goal.

Overview of the Learning Model

According Soekamto (in Trianto, 2009: 22), the purpose of learning model is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve certain learning, and serves as a guideline for the designers of learning and teachers plan learning activities.

According to Joyce (in Trianto, 2009: 5) says that the learning model is a plan or a pattern which is used as a guide in the classroom learning or learning in tutorials and to determine the tools of learning including books, movies, computers, curriculum, and others.

So it can be concluded that the learning model is a conceptual framework that reflected learning from start to finish typically presented by teachers in planning and implementing learning activities.

Overview of the Learning Outcomes

Understanding Learning Outcomes On Cognitive Domains

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Rusman (2013: 123) learning outcomes are a number of experiences gained from the student that includes cognitive, affective and psychomotor. Learning outcomes is the reality of meeting the educational goals, so that the learning outcomes are measured depends on the purpose of education (Purwanto, 2011: 46-47).

According Hamalik (2008: 30), "learning outcome is a change in behavior on the person, for example, from not knowing to knowing, and of not understands being understood". Physics learning outcomes is the ability earned by individuals through learning physics.

According to Bloom in (Suprijono, 2009: 6) learning outcomes include cognitive abilities, affective, and psychomotor. In this study, the authors will only reveal the results on the cognitive learning alone. Cognitive contain behaviors that emphasize the intellectual aspects, such as knowledge, understanding and thinking skills.

Cooperative Learning Model

According to Johnson (in Isjoni, 2009: 17), wrote that Cooperative Learning is to group students in the classroom to a small group so that students can work with a maximum capacity they have and learn from each other in the group.

According to Slavin (in Isjoni, 2009: 15), that the cooperative learning is a learning model where the system of study and work in small groups numbering four to five people collaboratively so as to motivate students to learn. Meanwhile, according to Lie (2008: 12) mentions Cooperative learning is a teaching system that provides opportunities for children students to work closely with fellow students in a structured task.

Model Cooperative Learning Jigsaw

Rusman (2011: 218), Jigsaw cooperative learning model is a cooperative learning model that focuses on group work of students in the form of small groups. Meanwhile, according to (Uno and Mohamad 2011: 110), Jigsaw is one approach to cooperative learning in which the student application formed into groups, each group consisting of a team of experts based on questions prepared teachers according to the number of teams of experts.

According to Slavin (2005: 237), in this technique the students work in members of the same group, which is four to five students, with a background of different abilities. After that teachers give students a brief explanation commissioned to understand the material that has been given. Each team member was assigned at random to be a team of experts in a particular aspect of the task that understanding. After studying the material experts from each team meet to discuss topics they discussed, and then they go back to their team to teach the subject to his teammates.

Based on some of the above opinion can be concluded that Jigsaw is a cooperative learning model in which students work in a member of the same group are four or five people in one group, where each group consists of a team of experts based on questions prepared by the teacher.

Steps Jigsaw Cooperative Learning Model

Rusman (2011: 218), suggests steps that can be done in this model, among others: (1) Students are grouped with the members 4-5; (2) Each person on the team was given the material and different tasks; (3) Members of different teams with the

same assignment to form a new group (group of experts); (4) After the expert group discussions, each member returns to origin group and explained to members of the group of sections under their control; (5) Each team of experts presented the results of the discussion; (6) Discussion; and (7) Cover.

According to Slavin (2005: 14), steps in Jigsaw cooperative learning model is as follows: (1) The teacher divides the class into groups, with each group consisting of 4-6 students with different abilities. This group is called the group of origin. The number of members of the home group adjusts the number of parts of the subject matter to be studied students according to the learning objectives to be achieved. In this type of Jigsaw, each student was given the task to study one part of the material. All students with the same learning study with the experts, students discuss the same part of learning materials and plan how to convey to the theme if returned to the origin group; (2) After the students discussed in expert groups as well as groups of origin, further each group presents or do the draw of one group to present the group discussion that has been done so that the teacher can make the perception on learning materials that have been discussed; (3) The teacher gives quiz individual; (4) The teacher gives an award to the group through the award scores based on the acquisition value of the individual learning outcome base score to score the next quiz; (5) The material should naturally be divided up into several parts of the material; and (6) It should be noted that when using Jigsaw for new material needs to be prepared a guidance on the content of the material enough so that learning objectives can be achieved.

According to Uno (2011: 110), a step-by-step learning model Jigsaw is as follows: (1) Stage 1: Preparing the learning materials; (b) Phase 2: Placing students in study groups, a maximum of 4-5 people heterogeneously (equally); (c) Phase 3: Placing students in groups of specialists or experts; (d) Step 4: Determine the score early to keep score as the base score; (e) Stage 5: Reading; (f) Step 6: Discussion of the expert group; (g) Step 7: Report of the group, (h) Stage 8: The expert or experts return to the home group; (i) Step 9: Test results conducted a thorough discussion of all students; (j) Stage 10: The students take individual quizzes that cover all topics; and (k) Stage 11: Choice group.

Based on expert opinion that the measures Jigsaw learning model can be summarized as follows: (a) Preparing learning materials; (b) Students are grouped of 5 people; (c) Each person on the team was given the material and different tasks; (d) Members of different teams with the same assignment to form a new group (group of experts); (e) After the expert group discussions, each member returns to the original group and explained to members of the group of sections under their control; (f) After students discuss in groups of experts as well as the original group, then performed the presentation of each group or do the draw of one of the groups; (g) The teacher gives a quiz to students individually; and (h) The teacher gives an award to the group through the award scores based on the acquisition value.

Strengths and weaknesses of Cooperative Learning Model Type jigsaw

According Jhonson (in Rusman, 2010: 219), doing research on cooperative learning jigsaw results show that cooperative interactions have various positive effects on children's development. The positive effects are: (1) Improve learning outcomes; (2) Improve memory; (3) Can be used to achieve a high level reasoning; (4) Encouraging the growth of intrinsic motivation (individual consciousness); (5)

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Improving human relations heterogeneous; (6) Promote a positive attitude towards school children; (7) Increase positive attitude towards the teachers; (8) Increase self-esteem; (9) Increase positive social adjustment behaviour; and (10) Improve the life skills and work together.

Things that can inhibit the learning process, especially under the influence of jigsaw cooperative learning model are as follows: (1) Lack of understanding about the influence teachers' cooperative learning model jigsaw; (2) The number of students is too much resulting in the teacher's attention to the learning process relatively small so that only a handful of people who master class arena, others only as a spectator; (3) Lack of socialization of books related parties about learning techniques Cooperative Learning; (4) Lack of source books as a medium of learning; (5) Lack of knowledge of the students will be technology and information systems to support the learning process; (6) If the teacher does not remind that the students always use the skills cooperative in their respective groups, the group feared would be jammed; (7) If the number of group members less will cause problems, e.g. if a member is simply piggybacking in completing tasks and passive in the discussion; (8) It takes longer time especially when there is space arrangement has not been conditioned properly; and (9) Changes the position of which can also cause noise.

METHODS

Design Research

This type of research is quantitative research with experimental research methods. In this study using shaped design pre-test - post-test control group design or experimental control group design. In this study, comparing the learning model Jigsaw as an experimental group with learning lectures and exercises as a control group.

According Arikunto (2010: 159) that the variables are all things that will be the object of observation in research there are two variables: (a) The independent variables are variables that are affecting (Arikunto, 2010: 162). The independent variables in this study the model of learning Jigsaw; and (b) The dependent variable is the variable that is affected (Arikunto, 2010: 162). The dependent variable in this study is the result of studying physics at Circular Motion material.

Population and Sample

Population in this study were all students in grade X SMAN 2 Lubuklinggau 2014/2015 academic year consisting of four classes. According Arikunto (2010: 174), is partially or representative sample of the population studied. The sample in this study is two classes taken at random by Simple Random Sampling technique. Is said to be simple (simple) for taking the sample members of the population was randomly without regard to strata that exist in this population. Thereby done when members of the population considered homogeneous (Sugiyono, 2010: 120). Her sample research is X.1 and X.3 class, where the class as a class experiment X.1 and X.3 class as a class Control.

Determination of the samples was done by random sampling based on the following steps: (1) Assign each number is number 1 for the class X.1, X.2 number 2 for the class, number 3 for the class X.3, X.4 number 4 for the class; (2) Then the serial number that has been assigned to each class is written on paper and then in small dice; and (3) Assign the class into the sample based on the results of the draw,

namely X.1 class numbered 40 students as an experimental class by using model Jigsaw and X.3 class numbered 40 students as control class using conventional learning models.

Data collection techniques used in this study is the testing techniques. According Arikunto (2010: 193), tests were performed twice: before (pre-test) and after (post-test) the learning process. The test used in this study is the description that is used to assess the cognitive abilities of students with eight items. Data analysis was conducted to determine the research hypothesis is accepted or rejected, and then the data is tested using the t test.

RESULTS AND DISCUSSION

Analysis of the results

Description of research data that is intended to provide a general description of the data obtained in the field. The research was conducted in grade X SMAN 2 Lubuklinggau Academic Year 2014/2015 conducted on October 15 until November 15, 2014. In this study, researchers used two classes as samples of a total population of four classes totalling 153 students. Class sampled is X.1 class with a total of 40 students as a class experiment and control class as a class X.3 numbered as many as 40 students. Class X.1 get treatment using the model of Cooperative Learning Jigsaw mode on the learning process. While class X.3 using lecture and discussion in the delivery of content. Samples obtained from simple random sampling technique.

Before the implementation of the study, first conducted trials instruments held on October 16, 2014 in XI.1 class SMA Negeri 2 Lubuklinggau followed by as many as 22 students. Implementation of the research was conducted during 4 meetings namely with details of the first meeting proficiency tests early (pre-test) are conducted on 22 October 2014 to the experimental class attended by 40 students. Likewise, the control class was conducted on 22 October 2015 attended by 40 students. The second meeting held learning by using learning model Jigsaw held on 25 October 2014 at the experimental class was attended by 40 students and the control class using model discussions and exercises conducted on 29 October 2014 attended by 40 students. The third meeting was held a re-learning process by using model Jigsaw for classroom experiments conducted on November 1, 2014 and to grade control using model discussions and exercises on November 5, 2014 attended by 40 students. And the fourth meeting to test the ability of the final (post-test) was held on November 8, 2014 attended by 40 students in the experimental class and the control class conducted on 12 November 2014 attended by 40 students. The provision of pre-test was used to determine the initial ability of students. In the circular motion of matter. After the pre-test students' abilities in mind, followed by learning activities by using the Jigsaw type of cooperative models. The learning activities will be done twice meetings. At the end of the study were post-test. The provision of post-test was used to to determine the ability of the student's final.

DISCUSSION

The implementation of this research begins with the planning device fabrication research that consists of the syllabus, lesson plan (RPP), and tests of cognitive ability of students to use cooperative learning model Jigsaw model. Learning groups applied using the experimental class of cooperative learning model

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type of Jigsaw. Jigsaw cooperative learning model is one approach to cooperative learning where in practice the students formed into groups, each group consisting of a team of experts based on questions prepared teachers according to the number of teams of experts.

From the analysis of the data, then for class experiments obtained as much as 70% of students who reached the KKM (KKM by 75). In the control group only 40% of students who reached the KKM (KKM by 75). This proves that the hypothesis is accepted that there is the influence of cooperative learning model jigsaw on learning outcomes physics class X SMAN 2 Lubuklinggau the academic year 2014/2015.

CONCLUSIONS

Based on the results of research and discussion it can be concluded that there is influence of jigsaw cooperative learning model for learning outcomes physics class X SMAN 2 Lubuklinggau the academic year 2014/2015. Obtaining the average post-test score of 71.70 experimental class and control class 64.47.

REFERENCES

Afifuddin. (2008). Differences Influence Learning Model Jigsaw mode and Group Investigation (GI) Against Learning Achievement Seen From the Life Achievement Motivation in Class X SMAN Holy District Academic Year 2008/2009. *online. The study program of educational technology graduate university program eleven Surakarta March 2008.*

Anwar, K and Harmi, H. (2011). *Learning Systems Planning Unit Level Curriculum (SBC)*. Bandung: Alfabeta.

Arikunto, Suharsimi. (2010). *Research Procedure A Practical Approach*. Jakarta: Rineka Reserved.

Giancoli, Dauglas. (2001). *Physics Fifth Edition Volume I*. Jakarta: Erland.

Hamalik, Oemar. (2001). *Teaching and Learning*. Bandung: Earth Literacy.

Lie, Anita. (2008). *Cooperative Learning*. Jakarta: Grasindo.

Musfiqon. (2012). *Development of Media and Learning Resources*. Jakarta: PT. achievement Pustakaraya.

Nisa Khoirotun, et al. (2013). Effect of Cooperative Learning STAD, TGT, and Jigsaw Against Student Results Class VII SMPN 26 Semarang, *online. Physical education programs, FPMIPA Teachers' Training College PGRI Semarang. ISBN: 978-602-8047- 80-7.*

Nur, Mohamad. (2005). *Cooperative Learning*. Surabaya: Center for Science and Mathematics School Unesa.

Rusman. (2010). *Models of Learning Developing Teacher Professionalism*. Jakarta: King Grafindo Persada.

____. (2011). *Models of Learning*. Jakarta: PT. King Grafindo Persada.

Slameto. (2010). *Learning and Factors Affecting*. Jakarta: Rineka Reserved.

Slavin, Robert E. (2005). *Cooperative Learning*. Bandung: Nusa Media.

Sudjana. (2005). *Statistical Methods*. Bandung: Tarsinto.

Sugiyono. (2012). *Qualitative and Quantitative Research Methods R & D*. Bandung: Alfabeta.

Suherman and Sukjaya. (1990). *A Practical Guide to Implementing Mathematics Education Evaluation*. Bandung: Wijayakusumah.

Trianto. (2009). *Model-Oriented Innovative Learning model Constructivistic*. Jakarta: Performance Library.

Uno, Hamza. B and Mohamad, Nurdin. (2011). *Learning With PAILKEM approach.* Jakarta: Earth Literacy.

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PERFORMANCE-BASED BUDGET MANAGEMENT AND REPOSITIONING ON THE CENTER OF EDUCATION AND TRAINING OF THE MINISTRY OF INDUSTRY AND THE NATIONAL SYSTEMOF VOCATIONAL TRAINING OF THE MINISTRY OF MANPOWER AND TRANSMIGRATION

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Abstract

This study aims to know the implementation of performance Based Budgeting in Education and Industrial Training Centre as a working unit of the Secretariat General of the Ministry of Industry. Researchers also want to know whether the implementation of performance-based budgeting in order to reposition the Industrial Training Center led to overlapping of authority with the relevant ministries. Hypothesis proposed is a) an overlap of authority accredited college with the Ministry of Education. b) Overlapping authority workforce training based on competency and certification of labor competencies, the Ministry of Manpower and Transmigration, c) Authorize the establishment of LSP and TUK and assessor training competencies with National Professional Certification Board. It required further research in getting solutions to eliminate the overlap with the harmonization of coordination among stakeholders.

Keywords: Management performance-Based Budgeting, Pusdiklat Industry, and Training National Labor System (Sislatkernas)

INTRODUCTION

Along with the adoption of a package of legislation in the field of state finances, namely Law of Number 17 Year 2003 on state Finance, Law Number 1 year 2003 on state Treasury and Law Number 15 Year 2003 on management and financial Responsibility state, the Government has embarked on the reform of public financial management in all aspects of financial management countries, one of the reforms in budgeting. Implementation of the reforms is expected to make the management of state finances become more independent, transparent, and accountable.

Fundamental changes are emphasized on reforming the budget formulation is the use of budgeting system that is different from the previous, i.e. the change of the system of dual budgeting into a *unified* budgeting, budgeting on the basis of input into performance-based budgeting system, and budgeting with a medium-term expenditure framework. This system replaced the traditional budgeting system, which has many weaknesses, because of the overlap of the cost will impact on the inefficiency of the budget. It is expected that with such an approach can be prepared a budget of quality, namely the six principal amount equal importances in assessing the quality of the budget, namely the economy, efficiency, affectivity, justice, accountability, and responsiveness. Of the three approaches budgeting approach to performance-based budgeting approach is regarded as the most important.

BASIS THEORY

To review the literature on the theoretical basis, the present study examines the concept of New Public Management (NPM), the concept of performance-based budgeting, and experiences in the implementation of performance-based budgeting. Besides, it also examines the theory of policy implementation that can be used to explain the problems found in the study. Since the mid-1980s, there has been a public sector management changes quite dramatically from the traditional management systems that seem rigid, bureaucratic, and hierarchical, to public sector management model that is flexible and accommodate the market. The changes are not just minor changes and simple, but profound changes that have transformed the role of government, especially in terms of the relationship between government and society (Djedje Abdul Aziz, et al., 2007). The new paradigm is emerging in the management of the public sector is approach of the New Public Management (NPM) proposed by Osborne and Gaebler (1995). Model NPM focuses on public sector management, performance-oriented, rather than on policy. Use of the new paradigm poses some consequences on the government, including the demands for efficiency, cost cutting, and the tender competition. Interest new public management is to change the administration are such that the public administration as a provider of services to the people should be aware of its duty to produce an efficient and effective service, but not oriented to profit (Osborne and Gaebler, 1995). Steps to implement the New Public Management can be done with the proviso supported by bureaucrats, politicians and the public.

Performance Accountability System for Government Agencies (AKIP) arranged in various legislations which include a Presidential Instruction No. 7 of 1999 concerning Performance Accountability of Government Agencies and subsequently reaffirmed back through the decision LAN no. 239/IX/6/8/2003 dated March 25, 2003 on guidelines for the preparation of reports accountability of government agencies as well as the Presidential Instruction No. 5 Year 2003 on the Acceleration of Corruption. This system starts from the Medium Term Development Plan (RPJM) five years from the Government. This RPJM followed by elaboration of the Strategic Plan each organizational unit. Every year, the organizational units make Annual Performance Plan with reference to the existing Strategic Plan and outlined in the Work Plan and Budget (RKA). Annual Performance Plan that has been reviewed and approved then determined performance. Performance Determination of a statement of commitment that represents determination and pledge to achieve clear and measurable performance within a span of one year. Determination of performance agreements between duty bearers with his superior (Performance Agreement). At the end of the fiscal year, the gains are reported in the statements of financial accountability and performance reports as well as feedback planning subsequent performance.

Framework

Reform of the financial sector in Indonesia since 2003 brought a fundamental change to the system which becomes performance-based budgeting. However, despite being mandated since 2003, the implementation of performance-based budgeting to date has not been fully in line with expectations. Especially when associated with the coordination and harmonization of performance among government agencies. Task Force of Center Education and Training Industry Secretary General of the Ministry of

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Industry should be accountable for the use of budget and performance. Research conducted regarding the implementation of Performance Based Budgeting in Industrial Training Center Unit with the qualitative model phenomenological approach. Therefore, this study used a qualitative research, and then made direct observation to obtain natural conditions in the field. Data interviews and data analysis research documentation and validation. The analysis consists of data organization, to find understanding and interpretation of the theme linked to the theory/concept and the results of previous studies. Validation is done by triangulation from multiple data sources. A result of the research is a description that answers research questions.

RESEARCH METHODS

Methods this study will describe the design of studies that reveal the type of research to be conducted, a rationale for the setting, location and time of the study which is the period of research undertaken data, as well as methods of data collection and analysis techniques to be used. Things-things or new leads were found from the results of the study are in accordance with the vision, mission, goals, objectives, duties and functions of the Unit Industrial Training Center. Analysis of Expenditure Standards (ASB) is the standard used to analyze the reasonableness of workload or cost of any program or activity to be carried out by a working unit in one fiscal year. Application of ASB will essentially provide benefits include: a) to determine the reasonableness of expenditure for carrying out an activity in accordance with its guidance, b) Minimize the expenditures are less clear which resulted in inefficiencies budget, c) Improving the efficiency and effectiveness of financial management work unit, and d) Determining the budget is based on clear performance benchmarks. e) The work unit gets greater freedom to determine its own budget.

Assessment of the budget in ASB includes two things: fairness and reasonableness of the cost of the workload. A description of the fairness and reasonableness of the cost of the workload will be described below: 1) Workload associated logical reasonableness of the proposed program of activities with the strategies and priorities of the entity. Correspondence between the programs of activities proposed to the duties and functions of the relevant work units. c) The capacity of the work unit to carry out the program activities on the desired level of achievement and within one fiscal year.

DISCUSSION

Budget Based Performance

Before the enactment of Performance-Based Budgeting system, budgeting method used is the traditional method or *line item* budget. How the budget is not based on the analysis of a series of activities to be linked to predetermined objectives, but more focused on the need for shopping/spending and accountability systems are not examined and investigated whether the funds have been used effectively and efficiently or not. The benchmarks of success is only shown with a balance between revenue and expenditure budget, but if the budget deficit or surplus means that budget execution failed. In the process, came the systematic budget performance is defined as a form of budgetary sources associated with the results of the service.

Budget performance reflects several things. First, the purpose and objective of the fund request. Second, the cost of the programs proposed in achieving this goal.

And third, quantitative data to measure achievements and work performed for each program. Budgeting approach focuses on the performance efficiency of an activity. Efficiency itself is a comparison between the outputs to the input. An activity is said to be efficient, if the output produced greater with the same input, or output produced is the same with fewer inputs. This budget is not only based on what is spent alone, as happens in the system of the traditional budget, but also based on the goals/plan specific implementation needs to be prepared or supported by a budget that is sufficient and the use of such fees should be efficient and effective.

In contrast to budgeting with traditional approaches, budgeting with performance approach is structured to orientation output. So, if we draw up a budget with performance approach, the *mindset* we have to focus on "what you want to achieve". If the focus to *"output"*, means thinking about the "purpose" activities must be included in every step when preparing the budget. This system focuses on the management in terms of efficient use of funds so that besides his work also examined. Thus, the measure of success is the budget system *performance* or achievements of the purpose or result of the budget by using funds efficiently. By building a budgeting system that can combine performance with an annual budget planning will look at the relationship between the available funds with the expected results. This funding system is also called the Performance-Based Budgeting (ABK).

The budget cycle is a period or periods begin when the budget is drawn up to the time of calculation of the budget approved by law. The budget cycle is different from the fiscal year. The fiscal year is the period of one year to account for the implementation of the budget or the time at which the budget is accounted for. Clearly, the budget cycle could include financial year or exceeding budget year because basically, the end of a budget cycle ends with the calculation of the budget authorized by law. The budget cycle consists of several phases: (1) Phase budgeting; (2) Phase of the budget approval; (3) Phase of budget implementation; (4) Phase of budget controlling implementation; and (5) Phase of ratification budget calculations.

For Performance-Based Budgeting can arrange in advance to be prepared strategic plan. Drafting objectively and involves all components in the government and society. For the system to work well need to set a few things that will determine which is the standard price, performance benchmarks and minimum service standards set forth by the legislation. Measurement of performance (benchmarks) was used to assess the success or failure of implementation of the activities/programs/policies in accordance with the objectives and tasks that have been set in order to realize the vision and mission of local governments. One aspect that is measured in local government performance assessment is the financial aspect in the form of ABK. To perform measurements of performance indicators need to be established beforehand include input indicators (input) in the form of funds, human resources and working methods. So that input can be informed accurately on a budget, there should be an assessment of the reasonableness. In assessing of the input to the output generated, the role of Standard Cost Analysis (ASB) is required. ASB is an assessment of the fairness of the workload and cost used to carry out an activity.

Budget Performance Based On Industrial Training

Plan A. Performance General Secretariat 2015

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Strategic goals to be achieved Secretary General of the Ministry of Industry in 2015 and is listed in the performance Agreement 2015 is derived from the strategic objectives which refers to the Ministry of Industry, Ministry of Industry strategic Map which has been outlined in the 2015-2019 strategic Plan and Roadmap and Key performance Indicators the Ministry of industry with adjustments based on the results of the review in the 201B. Strategic goals to be achieved the General Secretariat in 2015 is as follows: (1) Create a planning and control system that is reliable industry; (2) Realizing HR industry and professional apparatus; (3) Realizing the pro-business industrial policies and the completion of professional legal cases; (4) Providing public information timely and reliable; and (5) Achieve financial management, good infrastructure.

Performance Plan Secretariat General in 2015, especially on target to realize the industrial human resources and personnel are professionally managed by the Education and Training Industry Ministry of Industry are as follows:

Strategic Objective (SSF	**Key Performance Indicators (IKU)**	**Unit**	**Target 2015**
Realization of industrial human resources and personnel were professional	absorption the number of graduates working in the vocational education sector industry	People	2530
	Graduates Training three in one (training, certification, and placement in HR Industry	People	1600
	Total SKKNI in the industrial sector	SKKNI	B
	Prospective new entrepreneurs who are competent through the program TPL scholarship	people	300
	standard of competence in human resource	index	3
	HR personnel who are competent	Percent age	90
	Availability of HR personnel who are competent through technical training industry	People	500
	Availability of human resources of the competent through the implementation of education stub degree S2 and S3 and abroad	People	80
	the level of employee attendance	percent age	90

While on the performance Accountability Report of Government Agencies (LAKIP) in 2015 the Centre for Education and Vocational training industry Secretariat General of the Ministry of industry, especially the strategic objectives in the field of HR industry can be expressed as follows:

1. Realizing the strategic goal of industrial human resources and professional personnel with indicators

   a) absorb the number of graduates of vocational education who work in the industrial sector, with a target of 2530 people/year, and that can be realized are as

many as 3537 persons/year so that performance is as much as 139.80 percent; b) Graduates Training three in one (training, certification, and placement of HR Industry with the achievements of 1600 person/year and produced are as many as 17,832 person/years so achievement this year is 1114,50 percent; c) Prospective new entrepreneurs who are competent through program TPL scholarship with a target of 300 person/year, while that can be created is 285 person/years so achievement in 2015 was 95 percent; d) Number SKKNI in the industrial sector with a target of 4 and realized as many as 27, so that the achievements 625 percent; e)Availability of human resource competent through technical training industry with a target of 500/year, and that can be realized as many as 552 people/year so that its achievement is 110,4 percent; f) Number Competency Standards Position for Structural with targets as 90 per cent while the number of job competency standards that can be realized is 100 percent of the structural officials so that the achievements of this year was 111.11 percent; g)Availability of competent human resource through the implementation of education degree S2 and S3 at home and abroad with the target 88 people/year and as many as 244 the realization that the achievement 254,55 percent; and h)Employee attendance rate with a target of 90 percent, the actual achievement of as much as 92.99 and 103.32 percent;

2. Strategic objective increasing the quality of education and training institutions and entrepreneurship with indicators: a) Availability of certification, with a target of 92 people, the realization of 100 people and achievements of 108.69 percent; b) Certification lecturers profession with a target of 72 people, the realization of 73 people and the achievements of 101.38 percent; c) Certification assessors with a target of 20, 209 realization and achievements of 1000,45 percent; d) The study program (PRODI) the educational unit accredited A and B with a target of 23 Prodi to the achievement of 100 percent; e) Establishment of a Professional Certification Agency (LSP) and place Competency Test (TUK) is targeted as much as 5 and reached 8 pieces of the LSP and TUK so that the achievement of 160 percent; and g) Establishment of system competency-based education with targets and realization of 8 units of work so that the performance is 100 percent;

Repositioning The Center of Education and Training of Industry

Program Repositioning of Policy Development Unit Education and Training Center industry in design framework repositioning the vision of the Training Center Industry 2025 to become Education and training institutions in the field of superior industry-based competency and competitiveness. While the mission Pusdiklat Industry until 2025 are: 1) building a Human Resources (HR) Industry competent and professional, 2) provide skilled labor, associate expert and experts according to the needs of industrial sector and 3) build management education and competency-based training and internationally.

The implementation of the program of this repositioning, the Pusdiklat industry in the future will be directed functions as Holding (regulator, facilitator and evaluator) in order to improve program Repositioning for Education and Industrial training (training center) is geared to be a training center Small and Medium industries (SMI) based on specialization and competence. It is called repositioning, because the current position, the Training Center of the Ministry of Industry more training for local officials. Apparatus area in question is a Civil Servant (PNS) in the

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Department of Trade and Industry provincial and district/city. Meanwhile, the increased role of SMEs to support the strengthening of the industrial structure by increasing linkages between large industry and SMEs are scattered throughout Indonesia. In repositioning, Human Resource Training Center will make SMEs as a target audience. During this guideline (tupoksi) of Pusdiklat as the organizer of training for personnel, the data is still untapped SME optimally.

Repositioning the Industry Training Center is a great plan for the long term development of national industry. Therefore, implementation of the gradual but continuous Repositioning is the key to success. Implementation of this repositioning is planned to be implemented in three phases until 2025, as follows:

Phase 1

- Establishment and operation of Tim Reposition at the Training Center Industry
- Manuscript preparation Academic Studies Specialization and Competence Training Center Industry
- Action Planning 2012-2015 Development Training Center Industry
- mapping Potential and specialization and competence PUSDIKLAT
- Completion of the Organization towards specialization and not Regionalization
- Building Sites competency Test (TUK)
- Develop Production Unit *(Teaching Factory)* according to its competence
- Completing the infrastructure, human resources, and governance based on competency

Phase 2

- Develop competency standards
- Build Professional Certification Institute (LSP)
- Develop training programs/competency-based education
- Completing the infrastructure, human resources, and governance based on competency
- Unit Education system Building TNA and Pattern-based training competence
- Building systems Implementation training and Education competency based
- Building Management training superior
- Implement training for IKM competency-based

Phase 3

- Maintaining continuity HR competency Industry.
- Extending the application of high technology for human resource development industry in a sustainable manner.
- Pioneering implement the organization of the training of SMEs based on competency
- Strengthening training cooperation inside and outside the country on an ongoing basis.

The repositioning of the organization Centre for Education and training Industry (PUSDIKLAT) the Ministry of Industry is to revitalization which includes the function of education and training, promotion of education and training function, the function of workshop/teaching factory, and the role of three in one. The Center of Education and Training of Ministry of Industry will not change the existing organizational structures. Revitalization was just to adjust the duties and functions in accordance with the mandate of Law No 3/2013 on Industry.

Through repositioning Training Center is expected to become a center of education and training of industrial workers and IKM-worker based specialization and competence. In addition, the Training Center is expected to perform the function of promotion of education and training as a development incubator industry, especially for SME businesses. This is done because one problem faced by SMEs is the limitation in marketing.

Added, Training Center will also function as *a workshop* or *teaching* factory, so Pusdiklat be a place to train industrial workers and industry players KM in terms of technical skill industries. Kind of workshop is expected according to specialization and competence Industrial Training Center. In addition, the workshop owned facility will also serve as a test of competence (TUK) and became a production unit. Looking ahead, Industrial Training Center can carry out three roles at once *(three in* one), a competency-based training, competency-based certification and job placement industry. "All of it was intended to increase the contribution directly from Pusdiklat industry to job seekers and the business industry.

National System for Vocational Training (Sislatkernas)

National System for Vocational Training, here in after referred Sislatkernas, rests on three main pillars, which refers to the standard of competence, implemented with the principles of competency-based training and certification of competencies of graduates conducted independently. The constellation of institutional Sislatkernas consists of 5 (five) institutions, i.e. institutions competency standards, the implementing agency of competency based training, accreditation institution training institutions, certification bodies competence and the coordinating institution of job training.

Training System National Work, hereinafter referred Sislatkernas, is interconnectivity and integration various components of job training to achieve the objectives of national job training. The purpose is the creation of a national job training Indonesian workers who are competent, professional and productive in performing job duties. Every worker, according to his ability, to follow vocational training to master the type and level of competence of a particular work. Job training is to be based on competency, which is the component consisting essentially of: (1) The National Competence Indonesia; (2) Program Job Training Competency Based referring to the National Competence Indonesia; and (3) Competency Certification Professional.

Conceptually, the essential components of Sislatkernas referred to as described below:

1. The National Competence Indonesia (SKKNI)
   National Competence Indonesia, hereinafter referred SKKNI, is a formulation workability covers aspects of knowledge, skill or skills and work attitudes that are relevant to the execution of duties and job requirements are defined, in accordance with provisions of the legislation in force. SKKNI the competency standards that apply nationally in Indonesia. SKKNI not individual enterprise competency standards, but the standards of competence which is inter company. Thus, SKKNI should be applied and applies to all similar companies.
   SKKNI is the foundation of the development of competency-based training. A very strategic position, namely as a reference for the development of training programs as well as to benchmark the development of professional competence certification system. Therefore, the development of SKKNI must be a "common duty" of all stakeholders in all sectors and professions.
2. National Qualifications Framework Indonesia (KKNI)
   National Qualification Framework, hereinafter referred KKNI, is the framework of levelling of competence and qualifications to pair, equalizes and integrates the field of education and job training and work experience, in order to give

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recognition work competence, in accordance with the structure of employment in various sectors. KKNI become a reference in the packaging SKKNI to the level or levels of qualification. Referring to the Government Regulation No.31 of 2006 on National Employment Training System, KKNI consists of 9 (nine) qualification levels, namely Certificate-level qualifications up to level I-IX qualification certificate. Packaging SKKNI into KKNI qualification levels using parameters or descriptors set out in Regulation of the Minister of Labour 21/MEN/X/2007 on Procedures for Determining SKKNI.

3. Competency-Based Job Training
   Job training is to give the overall activities, acquire, enhance and develop job competence, productivity, discipline, attitude and work ethic at a certain level of skill and expertise, according to the level and qualification of office or employment. Job training with competency-based training program that refers to SKKNI. Competency-based job training should be supported by facilities and infrastructure, instructors and coaching staff as well as the financing according to the type, packaging and level of training program that has been set. Competency-based job training conducted at a training institute work (LPK), both owned by the government, private and corporate. Competency-based job training can also be organized with the apprenticeship system.
4. Certification of Competency
   Certification work competence is the process of granting a certificate of competence, which is carried out systematically and objectively through competence tests, according the National Competence, International Standards and/or Standard Special. Job competence certification objectives are to provide recognition and reward competence and quality assurance and maintenance of competency. Certification of competencies can be followed by participants or graduates and job-training programs or labor that has had adequate work experience. Certification of competence is not merely the provision of a certificate of competency, but further than that is the guarantee and maintenance work competence. Therefore, the implementation of the competency certification should be subject to the rules of quality assurance system that applies internationally.

CONCLUSIONS AND RECOMMENDATIONS

1. The repositioning of the organization Centre for Education and Training Industry (PUSDIKLAT) will lead to an overlap with other ministries. Certification and accreditation of college lecturers are developed by Industry in the implementation phase of the Pusdiklat.
2. Repositioning Pusdiklat organization will overlap with the Ministry of Education and Culture.
3. Repositioning the Organization Pusdiklat will also give rise to an overlap with the national job training System (Sislatkernas), and the development of a national standard of competence workplace (SKKNI) who is the authority of the Ministry of manpower and transmigration.
4. Repositioning the organization also raises Pusdiklat overlap with national board certification of Professions (BNSP) with its development of LSPS and TUK which becomes authorized BNSP.

5. Report of performance accountability of Government Agencies (LAKIP) 2015 particularly concerned with improving the quality of Human Resource of Industry in the working Units Industrial Pusdiklat shows have not been synchronized between the target the Ministry of industry and work units in the target organizational unit of the Secretariat-General of the Ministry of industry which includes the Training industry.
6. This journal is based on a short research conducted during April to July 2014 in line with the test in the end of Semester of doctoral program of educational technology State University of Jakarta. Research done by direct observation and interviews with the officials and staff of the Directorate of the Centre, the surroundings of competence Standards and training programs of the Ministry of manpower and transmigration, Directorate of the Ministry of chemical industry of non-Metals Industry and the national professional certification Agency. In addition, this study is limited to the issue of performance-based budgeting at the Centre of education and Training Industry Ministry Industrial and this research is a case, so it cannot be generalized to the case of different settings.
7. As for suggestions for further research i.e. qualitative research on how overlapping authority could be harmonized and coordinated between government agencies and other stake holders.

REFERENCES

Bastian, Indra. (2006). *Akuntansi Sektor Publik Suatu Pengantar*. Jakarta: Penerbit Erlangga.

Buku Pedoman Pelatihan Berbasis Kompetensi, Organisasi Perburuhan Internasional, Juli 2004.

Buku Pedoman Reformasi Perencanaan dan Penganggaran, 2009. Badan Perencanaan Pembangunan Nasional dan Departemen Keuangan RI.

Peraturan Pemerintah RI Nomor 21 Tahun 2004 tentang Penyusunan Rencana Kerja dan Anggaran Kementrian Negara/Lembaga (RKAKL).

SK LAN Nomor: 239/IX/6/8/2003 tentang Pedoman Penyusunan Pelaporan Akuntabilitas Kinerja Instansi Pemerintah.

Robinson, Mare and J. Brumby. (2005). Does Performance Based Budgeting Work: An Analytical review of the Empirical Literature. IMF Working Paper 05/210-International Monetary Fund. Washington.

UU No. 17 tahun 2003 tentang Keuangan Negara.

UU No. 1 tahun 2004 tentang Perbendaharaan Negara.

UU No. 15 tahun 2004 tentang Pemeriksaan Pengelolaan dan Tanggung Jawab Keuangan Negara.

UU No. 25 tahun 2004 tentang Sistem Perencanaan Pembangunan Nasional Peraturan Pemerintah RI.

UU No. 20 Tahun 2004 tentang Rencana Kerja Pemerintah (RKP).

www.kemenperin.go.id/.../Rencana-Kerja-Kementerian-Perindustrian-Tahun-2016

www.academia.edu/.../Buku_Reposisi_Pusdiklat_Industri

www.anggaran.depkeu.go.id/web-content-list.asp?ContentId=628

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INFLUENCE MODEL TYPE COOPERATIVE LEARNING TEAM ASSISTED INDIVIDUALIZATION (TAI) LEARNING OUTCOMES OF PHYSICS CLASS X SMA STATE 7 LUBUKLINGGAU LESSONS YEAR 2015/2016

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Abstract

This thesis titled: Effect of Cooperative Learning Model Type Team Assisted Individualization the results of studying physics class X SMAN 7 Lubuklinggau in the school year 2015/2016". The problem in this study is whether there is significant influence cooperative learning model of Team Assisted Individualization on learning outcomes physics class X SMAN 7 Lubuklinggau. This research is a purely experimental research Carried out in the presence of a comparison group as the population is class of X SMAN 7 Lubuklinggau in the school year 2015/2016, totaling 88 people. The sampling technique in this study was drawn at random (random). in this study, the sample is a class X.1 and X.2, then both samples were selected randomly Returned to be chosen as an experimental class and control class, so in this study as an experimental class X.1 given class learning Cooperative Learning Model type Team Assisted Individualization (TAI) and the class as a class given control X.2 learning by lecture method. Data collection techniques used are the testing techniques. Analyzed data were taken using t-test. Based on the analysis of the data with a level of α = 0:05 thitung (2.61)> TTable (2:02), so it can be concluded that there is significant influence the use of cooperative learning model of Team Assisted Individualization on learning outcomes physics class X SMAN 7 Lubuklinggau.

Keywords: Cooperative Learning, Team Assisted Individualization (TAI), physics learning outcomes.

INTRODUCTION

Education is one thing that is very important for children in Indonesia. Education is also believed to be a container that can build the intelligence of learners and to be a forum to build the personality of learners towards the better. According to Nugroho (2013: 2) Education is a conscious effort to create an atmosphere of learning and the learning process for learners to be able to develop their potential. One of the problems facing the world of education is a problem of weak processes learning. The learning process is monotonous resulted passive students in learning activities so that students simply follow the lessons taught in the absence of a response, criticism, and questions of feedback in learning activities.

Teaching and learning activities is itself an important activity, the success or failure depends on the situation of learning objectives and learning activities carried out in the classroom.

Referring to the existing problems can be understood that the cause of the poor performance of class X student at SMAN 7 Lubuklinggau are some students who are not interested in learning physics. Under these conditions need to be applied to the learning model that will be able to assist students in improving learning outcomes and understand the subject matter to make students actively in learning

activities, the activities are not only centered on the teacher but involve students directly in the learning process. One model of learning that makes the students active is a cooperative learning model Team Assisted Individualization (TAI).

According Trianto (in Nugroho, 2013: 3) with cooperative learning, learning will be more meaningful and will facilitate students in finding and understanding the difficult concepts. According to Slavin (2010: 4) cooperative learning is a wide range of learning model in which students work in small groups to help each other subjects in the study material. In a cooperative class, students are expected to help each other, discuss and argue with each other, to hone the knowledge that good at the moment and close the gap natural understanding of each. According to Suyanto and Jihad (2013: 150), Team Assisted Individualization (TAI) is a cooperative learning that combines the advantages of cooperative learning and individual learning. This type is designed to address individual students' learning difficulties seecara. Therefore, learning activities more widely used for solving the problem, typical of this type of TAI is the individual students learning instructional material that has been prepared by the teacher. The results of individual study brought to the groups to be discussed and addressed by group members, and all members of the group responsible for the overall response as a responsibility.

Based on these descriptions, the researchers intend to conduct a study entitled "The Effect of Cooperative Learning Model Team Assisted Individualization (TAI) against the Learning Outcomes Physics Class X SMAN 7 Lubuklinggau in the school year 2015/2016".

Based on the background that has been stated previously, the formulation of the problem in this research is "Is there any influence of cooperative learning model Team Assisted Individualization (TAI) on learning outcomes physics class XSMAN 7 Lubuklinggau 2015/2016 academic year? “Scope thesis will avoid deviation of the issues to be examined, it is necessary given the restrictions on the problem, namely: (1) learning materials studied is the measurement, (2) Results of study that will be examined in this study is the result of studying physics at the cognitive, (3) the types of questions used in this study is the type of questions C1, C2 and C3, (4) control classes are taught by lecture and question and answer.

The purpose of this study was to determine the effect of cooperative learning model Team Assisted Individualization (TAI) on learning outcomes physics class X SMAN 7Lubuklinggau the school year 2015/2016.

The results of this research useful (1) Students, with the implementation of cooperative learning model Team Assisted Individualization (TAI) can help students to improve learning, optimize the ability to think, the responsibility of the students in learning activities, (2) Master is an effort to increase learning quality and professionalism of teachers in planning, organizing, executing, controlling, improve the quality of programs in learning and can be used as input in teaching, (3) Research School is used as input in improving the quality of education through cooperative learning model Team Assisted Individualization (TAI). (4) The researcher, this study as a basis to add insight to researchers in teaching the material using cooperative learning model Team Assisted Individualization (TAI).

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METHOD

In this study included in this type of experimental study with experimental method. In this study using shaped design pretest-posttest control group design or experimental control group design. In this study, comparing the cooperative learning model Team Assisted Individualization (TAI) as an experimental group with learning lecture and asked questions as a control group. The study design can be shown in Table 3.1 below:

Table 1: Design Pre-test Post-test Control Group Design

Group	Pre-test	the Treatment of	Post-test
Experiment	O_1	X	O_2
Controls	O_1	-	O_2

(Sugiyono, 2011: 76)

Information:

O_1 = the initial test (pre-test). O_2 = Final test (post-test).

X = cooperative learning Team Assisted Individualization (TAI).

- = Conventional learning with lecture and question and answer.

Data collection techniques used is tekik test. "Test normality, indicating that the value of χ2 thitung<χ2 beg for it shows is a series of statements or drills and other tools used to measure skills, that data is normally distributed both classes. So also with the calculated homogeneity, because intelligence knowledge, ability or talent possessed by the pre-test Fhitung< Ftable, so individuals or groups also with post-test Fhitung< F table,"(Arikunto,2013: 193).

According Sudjana (2002: 67) Analysis of the test data conducted to test the hypothesis of the research and the results of the tests can be deduced. From the results of the study was tested using the t-test before the data were tested by t-test, the data must first being tested by: 1) Calculation of Average and thus the variance pre-test and post-test for the experimental class and control class is homogeneous. After the test calculations of normality and homogeneity tests have been done, then these two classes normal distribution and homogeneous so that the hypothesis test used is the t-test. On Standard Deviation, 2) Normality Test, calculation of pre-test, t< t table then 3) Test Homogeneity, 4) Test Similarity Two average. The trial of this instrument aims to determine the quality of test questions that will be used in Ho is accepted, in other words the average experimental class and the average grade control is the same. While the post-test results obtained study using t > ttable so Ho rejected, four ways, namely validity, reliability, distinguishing features and difficulty index.

RESULTS AND DISCUSSION

Based on the results of pre-test students can be concluded that the initial ability of students in the initial knowledge alike are still low and there is a big difference between the experimental class and control class, while the results of the post-test the students, there are differences in the ability of the final between the experimental class and control class, before the test the hypothesis, then tested the prerequisite analysis first. The analysis prerequisite test is the test of normality and homogeneity test. The results of test calculations in other words an average result studied physics at the experimental class more than the control class. Thus the

hypothesis that reads "There is the influence of cooperative learning model Individualization Assisted Team (TAI) on learning outcomes physics class X SMAN 7 Lubuklinggau" unacceptable.

Based on research done in class X SMAN 7 Lubuklinggau using cooperative learning model Individualization Assisted Team (TAI) These students learn in groups and individually, in a group where there are students who have a background, gender and skill level is different. It is appropriate According to Lestari (2014: 2) learning model Team Assisted Individualization type of cooperative learning TAI is combines individual learning and cooperative learning. Students are placed in small heterogeneous groups with each group number of 4 to 5 people which are students who are good responsible to students with less ability. In a cooperative learning model Team Assisted Individualization (TAI) These students are divided into small groups with background, gender and abilities, after which students are given teaching materials in the form of student worksheet (LKS), students learn in groups, students are given scores and awards groups, the teacher reiterated that lessons have not understood the student and then the student is given individual quiz. With the group learning, it can simplify the delivery of content from researchers to students. In addition, the group learning process helps students to be able to understand more deeply the material that has been described by way of discussion among friends in one group. Friends who know must teach a friend of the group to be able to understand the material so that it can do the quiz questions given at the end of the lesson with individual assessment. The division of the group consists of 4 to 5 students are heterogeneous, which is used in the distribution of these groups is based on the value of daily test of physics students in the previous material. Group with The highest will be awarded in the form of appreciation to the best groups. At the first meeting on the implementation, beginning students have difficulty and finding obstacles, this is due to changes in teaching techniques are perceived by students as a novelty and require adjustments to the type cooperative model of Team Assisted individualization. One of the hurdles is still difficult to cultivate students the ability to think independently in a group, this is because students are not familiar with the technique of presenting the material carried by the teacher, for example, when teachers explore how far the student's ability to master the material of the measurement. Students are less confident in the answer and issue his opinion. Students are also less active in communicating, after completion of the learning process by using the cooperative model type Team Assisted Individualization and working on student worksheet (LKS) given by teachers in groups, the students return original position and prepare to work on the problems quizzes will be given by the teacher of the material that has been studied. After cooperative learning model Team Assisted individualization implemented, at the next meeting of students became interested and excited in participating in learning, and the creation of cooperation within the group. It is characterized by cooperation in the group that made the students can exchange minds, as well as students who are good to give information to students who are weak knowledge so that students who are weak can overcome the problem. At each meeting there is an increase in the learning process, students become spirit in this study looks at the last meeting almost all the groups get a high enough value. At the end of the test or the (post-test) all students can solve problems so well that the average student scores above the KKM.

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Based on statistical analysis proved that learning physics by using the type cooperative model of Team Assisted individualization can improve student learning outcomes. Thus the research hypothesis proposed in this study can be accepted as true, it can be concluded that the average result of learning mathematics class X SMAN 7 Lubuklinggau with cooperative learning model Team Assisted individualization better than students who use the lecture method. So that cooperative learning model Team Assisted individualization can improve students' mathematics learning outcomes. Conclusions and suggestions based on the results of research and discussion can be concluded that there is significant influence cooperative use of models Team Assisted Individualization on learning outcomes physics class X SMAN 7 Lubuklinggau the school year 2015/2016. This is evidenced by the results of the analysis of the t-test with thitung (2.61)> t table (2.02) with $\alpha = 0.05$. The average value of the final test result of studying physics students in the experimental class at 76.55 in the control class is 68.67. Based on the conclusions obtained in this study, it is suggested: 1) The students, helping students to improve learning, optimize the ability to think, the responsibility of the students in learning activities. 2) Teachers, one of the efforts to improve the quality of teaching and teacher professionalism in planning, organizing, executing, controlling, improve the quality of the learning programs and can be used as input in teaching.

BIBLIOGRAPHY

Alsa, Asmadi. (2011). Effect of Method of Learning Team assisted Individualization the Learning Achievement Statistics on Mahasiswa Psikologi. *Psikologi, 38 (3) 2*.

Arikunto, Suharsimi. (2013). *Research Procedure Practice Approach*. Jakarta: Rineka Reserved.

Daryanto. (2010). *Learning and Teaching*. Bandung: Yrama.

Dimyati and Mudjiono. (2006). *Teaching and Learning*. Jakarta: Rineka Reserved.

Lestari, Rika. et al. (2014). Application of Cooperative Learning Model Team Assisted Individualization (TAI) Accompanied Demonstration Methods in Learning Science-Physics in junior high. *Journal of Physical Education, 3 (3), 2*.

Mulyatiningsih, Endang. (2013). *Research Methods Applied Education*. Bandung: Alfabeta.

Mustaqim and Abdul Wahib Mustaqim. (2010). *Educational psychology*. Jakarta: Rineka Reserved.

Nugroho, Siswo. et al. (2013). Effect of Cooperative Learning TAI Against Learning Achievement Math Achievement Motivation Students Seen From Class V SD SHOOTS DAUD. *e-Journal University Graduate Program Ganesha Program Education Study Elementary Education, 3 3*.

Rosyid, Farchani. et al. (2014). *Basic Physics Volume 1 Mechanics*. Yogyakarta: Crockery.

Rusman. (2011). *The models of learning: to develop the professionalism of teachers*. Jakarta: RajaGrafindo persada.

Sardiman. (2012). *Interaction of Teaching and Learning and Motivation*. Jakarta: Rajawali.

Slameto. (2010). *Learning and Factor factor Affecting*. Jakarta: Rineka Reserved

Slavin, Robert E. (2010). *The cooperative learning*. Bandung: Nusa Media

Sudjana, Nana. (2010). *Teaching and Learning Outcomes Assessment*. Bandung: PT Youth Rosdakarya.

Sudjana. (2005). *Statistical Methods*. Bandung: Tarsito Bandung.

Sugiyono. (2010). *Statistics For Research*. Bandung: Alfabeta.

Suherman and Sukjaya. (1990). *A Practical Guide Implement Evaluation of Mathematics Education*. Bandung: Wijayakusuma.

Suprijono, Agus. (2009). *Cooperative Learning: Theory and Applications PAIKEM*. Yogyakarta: Student Library.

Suyanto and Jihad, Asep. (2013). *Becoming Teachers: Strategies to Increase Teacher Qualification and Quality in the Global Era.* Retrieved from http://books.google.co.id/book s? Id =nMEVBQAAQBAJ & hl= En & id & output =HTML_TEXT & s ource = gbs_navlinks_s. [15March2015].

Uno, Hamza. (2012). *Learning Model*. Jakarta: PT. earth Literacy.

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BLENDED LEARNING IMPLEMENTATION STRATEGY FOR MINISTERIAL AND GOVERNMENT AGENCIES TRAINING CENTER

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Abstract

Enhancing the human resources in the ministry requires a holistic strategic planning due to the numbers of resources and its complexity. As the law stated, it is required minimum of 36-40 training hours per employee per year with employee stretched out in varies locations. The best solution in this case in blended learning, mix mode learning or hybrid learning which has been done by Training Center (Pusdiklat) from its ministry. By having holistic implementing strategic planning, training center end education center with blended learning based can reach much more employees and given proper and better trainings.

Keywords*:* Strategy, Blended, Hybrid, Learning, Training Center, Diklat

INTRODUCTION

Human resources development in government agencies or ministerial under the law has different minimum training hours depending to the bureau or department. Average minimum training hours of employee in the ministerial or government agencies are 36 to 40 hours per year. With approximately 4.5 million civil employees, the number of training demands keeps inclining. As for example, if all employees in Ministry of Transportation with 18,359 employees are obliged to earn 40 hours of training session, then there will be a total of 734,360 hours of training session ever year. By having 5 days with approximately 40 hours of training session with 100 employees, then there shall have 184 training sessions for one year. The number of training hours keeps increasing as well as the number of employees in other ministerial. For example, Ministry of Finance with 70,701 employees or Ministry of Religion with 232,655 employees. With the high demand of training session, there shall be a method, resources, facilities and proper strategic training. Traditional method of training shows how Training Centers (Pusdiklat) from ministerial or government agencies are supplemented by areal training agencies to give face-to-face trainings.

RESEARCH METHODOLOGY

In developing implementation strategy, it is required to used inductive approach which is started with identify the training needs from ministerial and government agencies through each training centers (Pusdiklat). The basic need is to fulfil the minimum training hours according to the law. Literature studies throughout the studies in the training institution and implementation of e-learning has to be done intensively to find the success matrix in the effective implementation of study method in training institution throughout the countries.

STUDY OF TRAINING CENTERS NECESSITIES

With the growth of technology and communication, several ministerial and government agencies have implemented electronic learning through several materials in their training program. Top priorities in e-learning consist on materials that are knowledge and do not require any practical studies or laboratory. As for materials that require practice or laboratory, face-to-face meetings, hands-on and mastering tools are still necessary. As for evaluation or examinations, several technical material necessities that require the mastery in several tools. It depends on the complexity and the value of a certain tool. The more complex and valuables, usually the tool can only be accessed in certain training centers or even in some training headquarters. Further consideration upon evaluation or examination locations usually depends on the tool's availability. The needs to merge between face to face method and online learning generates a new approach in teaching-learning method, known more as hybrid or blended learning (Rogers, 2001). Blended learning or hybrid learning method is a combination between e-learning and face-to-face method with purpose of creating a better learning process. According to Bonk & Graham (2006), Blended learning is a combination from two models of teaching and learning; where face-to-face is a traditional education system and distributed learning system. While blended learning is also known as mixed mode learning or hybrid learning, which is a learning program that requires more than one mode of information delivery and focus on optimal learning result and program execution expense (Singh & Reed, 2001)

FRAMEWORK AND LEARNING MODEL IN BLENDED LEARNING

Structure in Blended Learning according to Badrul Khan (Khan Octagonal Framework) can be a guidance to plan, develop, presenting, managing and evaluating blended learning program (Khan in Singh, 2001)

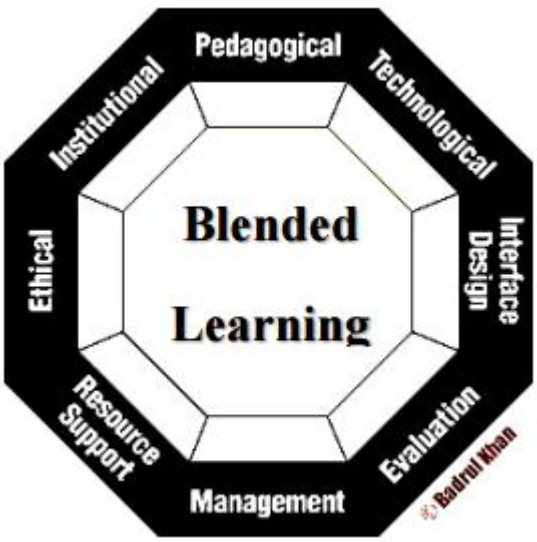

Figure 1: Khan Octagonal Framework

Khan stated that it requires eight dimensions for blended learning that has to be emphasizing to create an effective and meaningful blended learning surrounding. These eight dimensions include pedagogical, technology, interface design, evaluation,

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management, rescue support, ethical, and institutional. Adams and Morgan (2006) implemented four model of blended learning that emphasized in how important is selecting strategy that has to be made and how does blended learning model influence practical learning in different level. Model 3 and 4 according to Adams and Morgan are very effective in giving high response to productivity and learning results.

Model 1: in this model, the main emo is every face to face session in class and learning resources online is available as background. Model 2: this model requires balance between online material and in class. Online materials that are being used are needed for in class discussion to create a real connection to motivate and guide students. Model 3: For this model, required online resources are very significant with personal learning purpose. Model 4: Strategic learning in this model is designed to give diverse learning result through individual projects or team. In class session and online learning focus on creating a positive personal learning through diverse project results and increase personal productivity and team as main goal.

LEARNING MODEL

One of the most common learning models in designing learning model is ADDIE model. ADDIE model is a tool to design learning and management project in five steps (five steps project management) that come from the human performance technology and generally used in developing, managing and evaluating working improvements. Several points and principal that regulate the ADDIE Model in HPT includes focusing on result, system perspective, focus on adding value and systematic effort in all intervention design aspects and solution (Stolovic & Keeps, 1999).

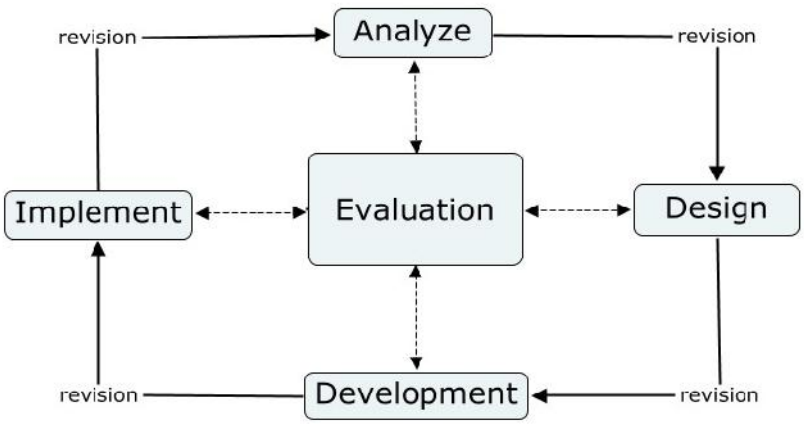

Figure 2: ADDIE Model

BLENDED LEARNING EMBEDDED MODEL

Combining E-Learning Khan and ADDIE model in designing learning system bring the outcome of new model for blended learning implementation throughout the ministerial and government agencies, such as:

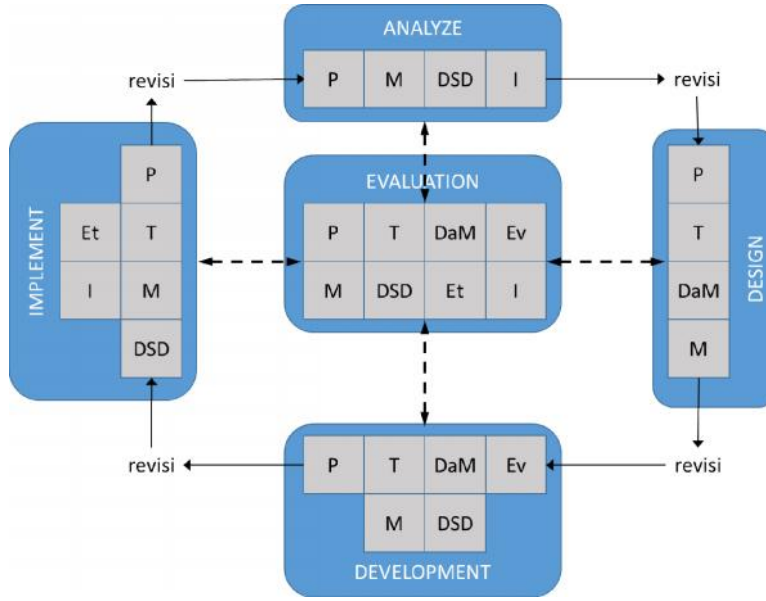

Figure 3: Blended Learning Embedded Model (Source: Writer)

Analyzing Step

In this step, the learning method is available in four analyzing dimension which includes: pedagogical analysis, management analysis learning, support resources analysis and institution analysis (Pusdiklat). Pedagogical analysis consists on the purpose of the study, employee analysis, entering behavior, material analysis and reaching the previous learning result. Management analysis includes management preparation in completing the e-learning base, responsibility program and internal also external devises. Support resources analysis includes in the availability of human resource for tutor, (widyaiswara), administration, system, help desk, material creators, availability in monetary resources, connection in training centers and between trainees also procurement of device if its required. Institution analysis is to match between vision and mission of the ministry or government agencies, coordination and synergy with the government agencies or other ministerial and to go along with the law and other policies, also to prepare policies and internal learning regulation.

Design Step

Learning design steps also includes pedagogical design, technology design, interface design and management design. Pedagogical design also includes in planning and curriculum design, material learning planning, assignment planning and evaluation learning also planning in managing the training holistically and with integrity for training centers in ministerial and government agencies. Technology design emphasize in the technology maturity that are required for the blended learning in the organization surrounding. Interface design includes learning management system that requires template from every material, interaction design between user and the system, storyboard design from every online and offline material and evaluation design, both online and offline learning. Management design

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includes planning organization manager for blended learning program both technical and non-technical

Developing Step

His step divided in pedagogical development, technology development, interface development, evaluation technique development, management development and support resources development. In this step, the result of design step is being realized in the real form that is ready to be implemented. Important note with this step is the requirement to do intensive tests in every module and learning process. Testing can be done one on one also in a focus group to figure every mistakes or downfall from a learning system. This testing shall be done with masters that are required that every material and learning process has been done perfectly and error free. Testing in a holistic way shall be done to integrate online and offline learning smoothly. Simulation shall be done in realistic surrounding. The readiness of every government agency in every area shall be standardized and accredited so no issues will appear during implementation.

Implementation Step

This step consists on pedagogical implementation, technology implementation, management implementation, ethical implementation, institutional implementation that shall be done through all area and require authenticity from every area. If it is done online, it shall require different time zoning in the east and west. 19.00 in Jakarta may equal 21.00 in Sarong. Institution implementation also means the readiness of an institution in implementing blended learning. Support from local offices and devices shall be made sure to give a supporting surrounding area.

Evaluation Step

Evaluation step for ADDIE model focus to give better improvement for the next step. This step covers the entire dimension from all blended learning based that has been done. Evaluation shall be done constantly by giving adjustments in previous four steps. With internet technological model in the presence, the improvement of the model does not require time for another cycle, but can be done on the fly to create a dynamic system that can be adjusted with the needs of the institution.

CONCLUSION

By strategic planning of blended learning implementation in ministerial and government agencies, it is required a certain integrated and synergic process to require the use of technology in the learning process and increase the productivity significantly and not ended up as an obstacle for the trainees. The use of devise and implementation model that focus to lower risk in failure and issues that may occur during implementation. Embedded Blended Learning Model still needs to be tested the effectivity in the field implementation but can be use as a guidance in planning a strategic implementation before training centers in the ministerial and government agencies decided on massive electronic learning system.

REFERENCES

Adams, J., & Morgan, G. (2006*). Blended Learning: Four Models for Integrating Work and Learning for Improved Job Performance*. Schulich School of Business, York University.

Bersin, J. (2004). *Blended Learning Book: Best Practices, Proven Methodologies, and Lessons Learned*. Pfeiffer.

Bonk, C. J., & Graham, C. R. (2006). *The handbook of blended learning: Global perspectives, local designs*. San Francisco: Pfeiffer.

Collis, B., & Margaryan, A. (2004). Criteria for Evaluation of Success of Blended Learning Methodology. *66th EAGE Conference and Exhibition–Workshops*. DOI:10.3997/2214-4609.201405685

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines.* San Francisco: Jossey-Bass.

Hirumi, A. (n.d.). *Online and hybrid learning design fundamentals.*

Rogers, P. L., (2001) Traditions to Transformations: The Forced Evolution of Higher Education. *Educational Technology Review: Vol. 9, No. 1*.

Singh, H. & Reed, C. (2001). A white paper: "Achieving Success With Blended Learning". Los Angeles: Centra Software. Retrieved from http://www.chriscollieassociates.com/BlendedLearning.pdf

Snart, J. A. (2010). *Hybrid Learning: The Perils and Promise of Blending Online and Face-to-Face Instruction in Higher Education.* Praeger.

Stein, J. (2014). *Essentials for blended learning: A standards-based guide*.

Stolovitch, H. D., & Keeps, E. J. (1999). *Handbook of Human Performance Technology: Improving Individual and Organizational Performance Worldwide*. San Francisco: Jossey-Bass/Pfeiffer.

Vickrey, J. (2012). *Hybrid learning landscape framework.* S.l.: Lap Lambert Academic Publ.

Wong, A. T. (n.d.). 5i: A Design Framework for Hybrid Learning. *Hybrid Learning and Education Lecture Notes in Computer Science:* (pp. 147-156). DOI:10.1007/978-3-540-85170-7_13

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RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE WITH THE ACHIEVEMENT OF PHYSICS CLASS X MA AL-MUHAJIRIN TUGUMULYO LESSONS YEAR 2014/2015

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Abstract

This research title is "The Relationship Between Emotional Intelligence in Physics Learning Achievement Class X MA Al-Muhajirin Tugumulyo academic year 2014/2015". Problems in this research are (1) Is there a relationship between emotional intelligence and academic achievement physics class X MA Al-immigrants Tugumulyo?, (2) How big is the relationship between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo?. This research is a correlation study. The sampling was done by using simple random sampling of the population of the entire class X MA Al-Muhajirin, and X2 class elected to the sample. Questionnaire data collection techniques and documentation of the value of report cards. Based on data analysis technique using product moment correlation obtained by the magnitude of the correlation between emotional intelligence and academic achievement Class X student of physics at 0.5799, this figure includes the correlation being. Based on the results of t-test analysis at significance level $\alpha = 0.05$, obtained T (count) (3.77)> T (table) (2.048), so that it can be concluded that there is a positive and significant correlation between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo the school year 2014/2015. The coefficient of determination obtained the relationship between emotional intelligence and learning achievement is 33.63%.
Keywords: *Emotional intelligence, learning achievement*

INTRODUCTION

Learning is not just memorized nor remembers. Learning is a process that is characterized by a change in a person. Changes as a result of the learning process can be demonstrated in various forms, such as changing the knowledge, understanding, attitudes and behavior, as well as other aspects that exist in individuals (Sudjana, 2009: 3). To find out how far the changes necessary to vote. Assessment of student learning outcomes to determine the extent to which have reached the goals or objectives of learning called learning achievement.

The process of teaching and learning in schools is one of the learning process is complex and comprehensive. Many people believe that to achieve high achievement in learning one must have Quotient intelligence (IQ) is high, because intelligence is a potential provision that will facilitate the learning study results will be optimal (Anwar, 2013: 163).

Based on preliminary studies conducted in MA Al-Muhajirin Tugumulyo, and also through interviews obtained an explanation of the physics teacher that students who are considered by teachers to have high intelligence, has not yet been able to achieve optimum learning achievement in physics. It is seen from the report cards of class X semester of 2014/2015 academic year from one of the students who are considered smart, but the value of the subjects of physics is still smaller than the other students who are considered less intelligent.

In fact, in the process of teaching and learning in schools are often found students who did not able to reach achievement equal learning with the intelligence ability. Some students were seen to have a relatively high ability, but rather obtain a relatively low learning

achievement, but some students that although the intelligence ability not too high, can achieve relatively high academic achievement. Therefore, the level of intelligence is not the only factor that determines the success of a person because there are other factors that influence (Slameto, 2010: 56). These factors include the factor that comes from within ourselves or from outside such as environmental factors.

According to Goleman (2006: 44), intelligence quotient (IQ) only accounted for 20% of our success, while 80% is the contributions factor other forces, such as emotional intelligence or Quotient Emotional (EQ). Emotional intelligence has five main capabilities: the ability to manage emotions, managing emotions, motivating oneself, recognizing emotions in others, and also fostering relationships (Goleman, 2006: 58).

The second student in the learning process of intelligence is necessary. IQ can not function properly without the participation of emotional appreciation of the subjects presented in school. Cooper and Sawaf (in Uno, 2008: 69) assert that emotional intelligence and other intelligences actually enhance each other and complement each other. Emotions ignite creativity, collaboration, initiative and transformation, while a logic function to overcome the urge erroneous and to align with the process.

Some research has been done several parties shows that there is a relationship between emotional intelligence and learning achievement. Bahtiar research results (2009), states that there is a relationship between emotional intelligence and student achievement in class II SMA Negeri 2 Mataram, the magnitude of the correlation (R_xy) of 0.284. Furthermore Defila et al. (2014) also states that there is a relationship between emotional intelligence and students' learning outcomes IPA SMP Negeri 1 Palu, with a correlation value of 0.559 and the regression equation obtained Y = 0.2319 X + 68.709, as well as the influence of emotional intelligence on learning outcomes by 31, 25%.

The learning activities in schools considered difficult by students is a physics lesson. Physics is one branch of science, and a science that was born and developed through the steps of observation, problem formulation, formulation of hypotheses, testing hypotheses through experimentation, drawing conclusions, as well as the discovery of the theory and concepts (in Trianto, 2010: 173). In the study of physics, the ability of understanding the concept of a requirement in the success of studying physics. This fact makes the physics into subjects that are considered difficult and disliked by students. In this case, student’s psychological condition that emotions play a very fundamental role to deal with barriers that often occurs in the learning process.

When emotions are stifled beating concentration of working memory, the ability to keep in mind all the information relevant to the task that it faces (Goleman, 2006: 110). Therefore, emotional intelligence can affect the desire to learn, seek new information and acquire new skills and experience. This will certainly impact on student achievement.

In regard to the importance of emotional intelligence on students as one of the important factors for the achievement of learning physics, the authors are interested in conducting research entitled "The Relationship Between Emotional Intelligence Achievement Learning Physics Class X in the MA Al-Muhajirin Tugumulyo Academic Year 2014/2015 ".

Based on the background of the above problems, the formulations of the problem posed in this study are: (1) Is there a relationship between emotional

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intelligence and academic achievement in physics class X MA Al-Muhajirin Tugumulyo?, (2) How big is the relationship between intelligence emotional and academic achievement in physics class X MA Al-Muhajirin Tugumulyo?

The objectives of this research are: (1) To determine whether there is a relationship between emotional intelligence and academic achievement physics class X in the MA Al-Muhajirin Tugumulyo, (2) To find out how much the relationship between emotional intelligence and academic achievement physics students class X in the MA Al-Muhajirin Tugumulyo.

The benefits expected from the results of this study, as follows: (1) For students can learn more about emotional intelligence so as to better recognize emotions in him that is needed in the learning process other than academic intelligence, (2) for teachers, as a point of comparison so can cope with differences in emotional intelligence in students in order to get the achievement better learning, (3) the researcher can add insight, knowledge, and experience about aspects of emotional intelligence on student achievement, (4) for other readers can provide an understanding of the importance of emotional intelligence,

BASIC THEORETICAL

According to Binet (in Uno, 2008: 60), intelligence consists of three components, namely (a) the ability to direct the mind or direct action; (b) the ability to change the course of action if such action has been implemented; (c) The ability to transform themselves. Intelligence originally meant the use of intellectual strength significantly, but then interpreted as another strength. In a further development, the notion of intelligence undergone many changes, but always implies that intelligence is the power or ability to do something.

Every human being must bestowed reason and emotion. Emotions according to Goleman (2006: 7) are essentially the impulse to act, immediately plan to address the problems that have been implanted gradually by evolution. Root of the word emotion is movere, the Latin verb that means moving or moves, plus "e" to give meaning to move away, implying that the tendency to act is absolute in emotion.

Chaplin in (Asrori, 2008: 82) defines emotion as a state that is stimulating from an organism include changes conscious, profound nature of the changes in behavior, he distinguishes emotions with feelings, he said the feeling is the experience of conscious activated by stimulating external or by assortment constitution.

Every individual has emotions. Emotions have much effect on the psychic functions such as, observations, responses, thoughts, and intentions. Individuals will be able to make observations or thoughts well accompanied with emotions well too. Individuals who can manage his emotions well meaning emotionally intelligent, this is known as a term called emotional intelligence.

Savoley and Mayer (in Mubayidh, 2006: 15) defines emotional intelligence as a social intelligence relating to ability of someone in monitoring, both emotionally himself or other people's emotions, and also the ability to distinguish the emotion itself with the emotions of others, where this capability is used to direct the thought and behavior patterns.

According to Gardner (in Suparno, 2007: 21) intelligence is not just the ability to solve a theoretical problem, but also in real experience and in various situations. Can an individual who has a high intellectual intelligence did not succeed

in his work in more complex situations. He said that not just one monolithic kind of intelligence that are important for success, but there is a wide spectrum of intelligence with the seven main varieties, namely linguistic, math/logic, spatial, kinaesthetic, musical, interpersonal, and intrapersonal. Intrapersonal intelligence and interpersonal intelligence is called personally by Gardner and hereinafter referred to as emotional intelligence.

According to Stein and Howard (in Uno, 2008: 69) says that emotional intelligence is the ability to recognize feelings, reach and arouse the feeling and meaning, and control the feelings in depth, thus helping the development of emotional and intellectual. From the definition that has been said it can be concluded that emotional intelligence is the ability to perceive, understand themselves and others, the ability to motivate yourself, and effectively apply the power and sensitivity of emotions as a source of energy, information, and connections to socialize with others.

Savoley (in Goleman, 2006: 57) put personal intelligence Gardner in the basic definition of emotional intelligence, while expanding the ability of these abilities into five main areas, namely: (1) recognize emotions, (2) Managing the emotions themselves, (3) motivate yourself, (4) Recognize the emotions of others, and (5) relationships.

The learning achievement is the disclosure of learning outcomes covering all the domains were changed as a result of experience and is expected to reflect the changes that occur as a result of student learning, both copyright and flavor dimension and the dimension of intention (Shah, 2010: 216). This is similar to what is said Marsun and Martaniah (in Tjundjing, 2001: 71) argues that learning achievement is the result of learning activities, namely, the extent to which learners master the material taught subjects, followed by the appearance of feeling satisfied that he has done something good.

Azwar (2013: 164) argues that learning achievement is a success of learning that can be operationalized in the form of indicators such as grades, GPA studies, the graduation rate, the predicate success, and the like.

Based on the opinions of experts can be formulated in terms of learning achievement is the assessment of education to change someone achieves after the learning process, which includes a thorough behavioral changes in attitudes, skills and knowledge, which is expressed in the form of numbers, so it can find learning progress that has been achieved.

RESEARCH METHODOLOGY

This research was conducted in the MA Al-Muhajirin Tugumulyo class X Semester Academic Year 2014/2015. The study was conducted during the month of May 2015. The population in this study were all students of class X semester of MA Al-Muhajirin Tugumulyo consisting of 8 classes with the number of students 246 students consisting of 105 male students and 141 female students. Samples this was taken with random techniques. Samples taken X2. Class experiment that includes descriptive research with a quantitative correlation method.

The instrument used in this study was a questionnaire of emotional intelligence which had previously been tested in advance and validated by psychologists as well as the value report first semester of the school year 2014/2015 class X MA Al-Muhajirin Tugumulyo.

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Steps for Research The implementation stages of this study are as following: (a) Validate questionnaire to two psychologists; (b) Perform the test questionnaires to the students of class XII IPA 2 MA Al-Muhajiri; (c) Implement the provision of emotional intelligence questionnaire in class X2 which has been selected as a sample; (d) Perform data analysis questionnaire that normality test; (e) Take the value report first semester of third grade students X2 Administrative staff MA Al-Muhajirin Tugumulyo; (d) Perform data analysis report value that normality test; and (e) Perform data analysis emotional intelligence questionnaire and the data value report i.e. correlation r xy, look for the coefficient of determination, linearity test, and regression analysis.

For hypothesis testing was done with the test-r xy is used to determine the relationship between emotional intelligence questionnaire data with physics learning achievement and the coefficient of determination to find out the relationship between emotional intelligence and academic achievement physics. The hypothesis tested in the form:

H_0: No relationship was positive and significant correlation between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo (H_0: $\rho = 0$);

H_a: There is a positive and significant relationship between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo (H_a: $\rho \neq 0$) Calculating the correlation coefficient between emotional intelligence questionnaire study physics student achievement data.

$$r_x = \frac{n \sum X_i) - (\sum X_i)(\sum Y_i)}{\sqrt{\{n \sum X_i^2 - (X_i)^2\} - \{n \sum Y_i^2) - (Y_i)^2\}}}$$

R_xy Where is the correlation coefficient, N is the number of subjects the owner value, X is the value of the variable (X), and Y is the value of the variable (Y).

To interpret the magnitude of the correlation coefficient is used reference by Sugiyono (2013b: 231) are presented in Table 1.

Table 1: Guidelines To Provide Interpretation of Correlation Coefficient

Interval Coefficient	Level Relation
0.000-0.199	very low
0.200-0.399	low
0.400-0.599	moderate
0.600 - 0.799	strong
0.800-1.000	very strong

The next the coefficient of determination to determine the percentage of independent variables on the dependent variable is expressed by the coefficient of determination that:

$$KD = r^2 \times 100\%$$

Information:
KD = Coefficient of Determination
r = product-moment correlation coefficient

Significant testing on the correlation coefficient using the formula

$$t = r_x \frac{\sqrt{n-2}}{\sqrt{1-r_x^2}}$$

Where t is the distribution of student scores, n is a lot of data, and r_xy is a correlation between variables.

H_0 = accepted if the value of t <t table at real level α = 0.05, in other cases Ha rejected. t_value results are compared with t_tabel.

RESULTS AND DISCUSSION

Research Result

After a series of processes of research that has been done, the researchers finally get the results of what has been studied. Data that has researchers obtained through this research can be analyzed and discussed in depth in accordance with the formulation of the problem and research objectives to be accomplished researcher. In this section we discuss the results with the analysis of the data obtained and the exposure of the findings of the research conducted. Data from this study of emotional intelligence questionnaire data and report score of odd semester. Normality test results with the formula chi squared emotional intelligence questionnaire data and report data semester of tenth grade students are presented in Table 2.

Table 2. Results of Multiple Intelligences Test Normality Test And Learning Achievement

Type of data	χ^2_v	Dk	$\chi^2_{t_i}$	Conclusion
Emotional Intelligence Data	2,1033	5	11,070	Normal
Data Value Report	3,5935	4	9,4888	Normal

Based on Table 2 above shows that the value $\chi^2_{value} < \chi^2_{table}$ That shows that emotional intelligence questionnaire data and physics learning achievement of students in normal distribution.

1) *Correlation*

From the results of these calculations obtained correlation coefficient of emotional intelligence and academic achievement of physics, namely r_xy = 0.5799. This figure shows a positive relationship between emotional intelligence ith learning achievement. To see the level of relations consulted in Table 1 correlation coefficient interpretation guidelines. Based on the table, then the value r_xy = 0.5799 is the correlation coefficient 0.400 to 0.599 which means the relationship between the two variables classified in the category.

2) *Coefficient of Determination*

The result of the calculation, the coefficient of determination between emotional intelligence and academic achievement of physics at 33.63%. This may imply that emotional intelligence is a positive contribution to physics learning achievement of 33.63%, while 66.37% is determined by other factors are not careful.

3) *Significance Tests Correlation Coefficient with Emotional Intelligence Learning Achievement of Physics*

Based on calculations t_hitung using t test, the obtained t_hitung = 3.77, while t_tabel for df = 28, with α = 0.05 was obtained t_tabel = 2.048. So t_hitung> t_tabel, this means H_o H_a rejected and accepted. It can be concluded that there is a positive and significant relationship between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo.

4) *Regression analysis*

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After analysis using linear regression results obtained by a = 47.31 and b = 0.424. So the simple linear regression equation between emotional intelligence of learning achievement physics is Y = 47.31 + 0.424 X.

5) Linearity Test

Table 3: Table ANOVA for Simple Linear Regression

Source of Variation	Dk	JK	KT	F
Total	30	187146		
Koefisien (a)	1	186598,53		
Regresi (b/a)	1	184,13	184,13	14,99
Sis	28	363,34	12,98	
tuna Matches	18	278,87	15,49	1,83
error	10	84,47	8,45	

Based on Table 3, the results of the calculation are known F_hitung = 1.83. With dk = 18 numerator and denominator df = 10, obtained F_0,05 (18.10) = 2.82 and the F_0,01 (18.10) = 4.52, so F_hitung <F_tabel. So the hypothesis that the linear regression model is received, this indicates that the intelligence emotional has a linear relationship with the students' physics learning achievement

DISCUSSION

The problems discussed in this study are the relationship between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo.

From giving the questionnaire, obtained data showing that emotional intelligence tend to vary owned. Based on the analysis of questionnaire data obtained students' emotional intelligence of students with emotional intelligence is very high category as much as one person (3.33%), in the category of high emotional intelligence as many as 17 people (56.67%), and the categories were as many as 12 people (40%). It can be concluded that emotional intelligence is an average student in high category, and there are no students being in the category of low and very low.

Results of the study showed that student's emotional intelligence aspects of intelligence emotional students have shown a picture of emotional intelligence of the students. The highest percentage of achievement in aspects of motivating yourself reaching 79.9%. This shows that in the process of learning the ability to cultivate positive motivation within yourself to be able to deal with the obstacles that occur in the learning process, making it more vibrant and more active learning. The percentage achievement of the lowest in the aspects of managing one's emotions is 68.25%. This shows that students who are less able to manage their emotions, sometimes more irritable and learning are always influenced by the mood, if you're angry or afraid, it will be lazy in learning.

The results of product moment correlation analysis on the relationship between emotional intelligence and physics learning achievement that is equal to 0.5799. These values show that emotional intelligence variables with variable learning achievement have a positive relationship and the relationship between the two variables in the medium category. By using the t test was obtained t_hitung = 3.77, while for t_tabel confidence level α = 0.05 and degrees of freedom (df = 28),

obtained t_tabel = 2.048, so t_hitung> t_tabel. This shows that emotional intelligence has a positive and significant relationship to student achievement.

The contribution of emotional intelligence students to learning achievement coefficient of determination (KD) amounted to 33.63%. This means that the emotional intelligence contributes positively to the learning achievement of physics at 33.63%, while the remaining 66.37% is determined by other factors not examined. These factors among others, environmental influences, parenting parents, interaction with peers, teachers' teaching performance, and use of learning facilities will also affect the learning achievement.

The statement was supported by the research results obtained linearity between two variables based calculation regression analysis. Of linear regression showed that if the emotional intelligence students increased to 100, then the physics learning achievement will be 89.71. It concluded that if emotional intelligence is improved then studied physics students achievement will increase as well. This shows that emotional intelligence have a positive influence on physics learning achievement.

This study suggests that, if students have a high emotional intelligence, then student achievement will be higher as well, and vice versa. This is consistent with the statement Tjundjing (2001: 69) states that a low level of intelligence emotional would result in a person can not use cognitive abilities to its fullest potential and tend to be easily discouraged. High emotional intelligence makes students eager to learn, able to control and recognize emotions, and liked by his friends. Instead of students who are not able to control his emotions, will have difficulty in learning will directly implicated in the acquisition of student achievement.

Doud Lennick (in Uno, 2008: 69) states that the emotional skills necessary to utilize the full potential and talents. The cause of a person does not achieve its maximum potential is lack of emotion. This becomes even more important to know that every student has a character different emotion, so each student should be treated with the characters emotions and feelings. To achieve optimum learning success, a teacher must be sensitive to students if there were irregularities in the student as not excited in learning. For that teachers should look for solutions in learning how his students can be excited, for example, changed the method/model of learning so that students are not saturated, and change the situation of the class, for fun.

Emotional intelligence holds a significant role in the achievement of student learning because it can increase motivation and self-awareness, so that students can be easier to focus, coping with stress, and diligent in completing the task. It can be concluded that the higher the emotional intelligence of students, the higher the academic achievement will be obtained

CONCLUSION AND SUGGESTIONS

Conclusion

Based on the discussion of the results of research and discussion as well as testing

hypothesis that has been done, it can be deduced that:

a. The correlation coefficient obtained at 0.5799, this shows that there is a positive and significant relationship between emotional intelligence and academic achievement physics class X MA Al-Muhajirin Tugumulyo the school year 2015/2015. The linear regression equation obtained was Y = 47.31 + 0.424 X, is

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addressing emotional intelligence have a positive relationship in physics learning achievement.

b. Emotional intelligence contributions to physics learning achievement indicated by the calculation of determination coefficient of 0.3363. This means that emotional intelligence has a 33.63% contribution to physics learning achievement, and 66.37% are influenced by other variables or factors that are not the object of study in this research.

Suggestions

Based on the research results and conclusions of the above then the advice that can be given by the researchers as follows:

a. Should educators select and develop approaches and methods that can develop emotional intelligence students.
b. This study is not only up here, so still need additional studies related to emotional intelligence variables other than learning achievement.

REFERENCES

Arikunto, Suharsimi. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.

Asrori, Mohammad. (2008). *Psikologi Pembelajaran*. Bandung: Wacana Prima.

Azwar, Syaifuddin. (2013). *Pengantar Psikologi Intelegensi*. Yogyakarta: Pustaka Pelajar.

Bahtiar. (2009). Hubungan Antara Kecerdasan Emosional dengan Prestasi Belajar Siswa kelas II SMA Negeri 2 Mataram. *Jurnal Pemikiran Alternatif Pendidikan: Vol. 14, No. 12* (pp. 254-268).

Dalyono, M. (2007). *Psikologi Pendidikan*. Jakarta: Rineka Cipta.

Djamarah, Syaiful Bahri. (2011). *Psikologi Belajar Edisi II*. Jakarta: Rineka Cipta.

Darmansyah. (2011). *Strategi Pembelajaran Menyenangkan dengan Humor*. Jakarta: Bumi Aksara.

Defila., et al. (2014) Hubungan Antara Kecerdasan Emosional dengan Hasil Belajar IPA Siswa SMP Negeri 1 Palu. *Jurnal Pendidikan Fisika Tadulako (JPFK): Vol. 12, No. 2* ISSN 2338 3240.

Goleman, Daniel. (2006). *Emotional Intelegence, Kecerdasan Emosional "Mengapa EI Lebih Penting dari IQ"*. Translated By T Hermaya. Jakarta: Gramedia Pustaka Utama.

Mubayidh, Makmun. (2006). *Kecerdasan dan Kesehatan Emosional Anak*. Jakarta: Pustaka Alkautsar.

Slameto. (2010). *Belajar dan Faktor-Faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta.

Sugiyono. (2013a). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R & D*. Bandung: Alfabeta.

_____. (2013b). *Statistika untuk Penelitian*. Bandung: Alfabeta

Suparno, Paul. (2007). *Metodologi Pembelajaran Fisika Kontruktivistik dan Menyenangkan*. Yogyakarta: Sanata Darma.

Syah, Muhibbin. (2010). *Psikologi Belajar*. Jakarta: Rajawali Pers.

Tjundjing, Sia. (2001). *Hubungan Antara IQ, EQ, dan AQ dengan Prestasi Studi Siswa SMU. Indonesian Physichological Journal: Vol. 17, No. 1* (pp. 69-87).

Trianto. (2010). Model *Pembelajaran Terpadu, Konsep, Strategi dan Implementasinya dalam Kurikulum Tingkat Satuan Pendidikan (KTSP)*. Jakarta: Bumi Aksara.

Uno, B Hamzah. (2006). *Orientasi Baru dalam Psikologi Pembelajaran*. Jakarta: Bumi Aksara.

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REMEDIATION OF MISCONCEPTION MOMENTUM AND IMPULSE WITH 5E LEARNING CYCLE APPROACH

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Abstract

This study aims to determine the percentage change misconceptions Momentum and Impulse after remediation approaches Learning Cycle 5E class XII IPA.4 SMAN 4 Lubuklinggau of Year 2015/2016, amounting to 32 students. The method used is descriptive qualitative. The instrument used multiple choice questions with opened reasson and 20 items test and documentation. The results showed that remediation of misconceptions with 5E Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (earlier researcher) and after remediation becomes 33.9% resulting in a decrease of 63.1%.

Keywords: Remediation, misconceptions, Learning Cycle 5E

BACKGROUND

Misconceptions that occur in students will affect their understanding in linking concepts prior to that has been studied as well as occurring obstacle in resolving the problems that relevant, therefore misconceptions students must be addressed immediately. Suparno (2005: 123) explains that there are several methods used to diagnose student misconceptions include multiple choice test with open reasoning and interviews. In the multiple choice test with open reasoning, students must answer and write why he has such an answer. After detecting the misconceptions, it means we must be able to distinguish between students who understand the concept, did not know the concept, and students misconception with an identification method known as CRI (Certainly of Response Index).

Based on the results of previous studies conducted Lusiana, N. (2015:11) on the Analysis Student Misconceptions Momentum and Impulse XII IPA.4 SMAN 4 Lubuklinggau in academic Year 2015/2016. Based on a multiple choice test with open reasoning, of the 20 items tested there are 16 items those misconceptions and 4 items controlled by students well. The number of students who have misconceptions of each item is 31% - 97% of 32 students. All material momentum and impulse tested experiencing misconceptions.

During this time, the learning model is applied to the learning process; especially physics has not centered on students, but rather centered on the teacher as the main source of knowledge, so the ability of students untapped optimally. The purpose of the use of Learning Cycle approach is to place the teacher not as a source of learning, but as a facilitator and motivator of student learning. So as to develop students' thinking skills toward solving the problem systematically and students get an answer on the basis of their curiosity.

Based on the above issues, to minimize misconceptions about physics, the authors want to continue to follow up previous research, entitled "The misconception Remediation Momentum and Impulse With Learning Approach Learning Cycle 5E".

THEORY

Description of Beginning Student Misconceptions

Suparno (2013: 4) defines that misconceptions or wrong concept refers to a concept that is incompatible with the scientific sense or understanding that received the experts in that field. Pure (2013: 205) defines misconception is a conception which deviates from the conception of the experts and attached firmly to the students. So, from some expert opinions can be concluded that misconception is a concept based on previous study results that are inconsistent with the concept of the scientists.

Based on the results of previous research conducted Lusiana. N. (2015) on Momentum and Impulse misconception XII IPA.4 SMAN 4 Lubuklinggau using 20 questions diagnostic test multiple choice open reasoning given to each student items include certainty of response index (CRI), student misconceptions based on Earlier Researcer on the concept as outlined in Table 1.

Table 1: Documentation of Student Misconception Based on Earlier Researcer

Concepts of Physics	Misconceptions
Concept of momentum	1. Momentum in the same with Force 2. Momentum in line with the speed and trajectory 3. Only objects that have large masses will have great momentum.
Concept of impulse realations	1. Impulse is the change of momentum 2. Objects that have a great impulse when mashing instantly destroyed
Concept of impulse and momentum	Momentum is equal with impulse
Concept of the law of conservation of momentum	Do not understand the concept of the law on the concept of conservation of momentum
Concept of collision	1. Do not understanding the concept of perfectly elastic collisions. 2. Do Not understanding the concept of elastic collision portion. 3. Do Not understanding the concept of the collision is not elastic at all. 4. Many high school students think that if there are two cars collide, both cars will stop for a total of zero speed. 5. Assume that the speed is a scalar quantity so that the same v ± sign on. 6. Some students think that if the trains at the same speed but opposite direction collide, they will stop because the total speeds to zero. ($\Delta V = 0$). They forget that the conservation of momentum requires $\Delta m.v = 0$. Then if its mass difference they will not stop immediately.

Reference: Lusiana. N. (2015)

Misconceptions Cause

Suparno (2013: 30) explains that the cause of the misconceptions in students is as follows:

1. Students, when the students themselves who construct knowledge without

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justification from a teacher, it is not impossible can cause misconceptions.

2. Teacher/Lecturer, misconceptions students may also occur because of misconceptions brought by physics teacher. Teachers who have not mastered the material or understand the physics of materials incorrectly will cause a student to get misconceptions.
3. Textbook, Textbooks can also spread the misconception because the language is difficult or because the description is not correct. Textbooks are too difficult for students who are learning level may also lead to misconceptions because they are difficult to catch it. Consequently they catch some or even do not understand at all.
4. Context, context consists of the student experience, everyday language that is different, another friend or friend is wrong discussion, explanation of the parents/others wrong, all of which can lead to misconceptions.
5. Teaching Method. Some of the teaching methods used by teachers, especially those emphasizing only one face of the concept of material that was involved, although help students catch material, but often have bad effects, which led to misconceptions students.

Based on the results of previous investigators interview then generally it can be concluded the cause of students experiencing student misconceptions XII IPA SMAN 4 Lubuklinggau TP 2015/2016 can be seen briefly in Table 2.

Table 2: Documentation Cause misconceptions at XII IPA.4 SMAN 4 Lubuklinggau based on interviews Earlier Researchers

Main Cause	Special Cause
Student	1. The low student motivation 2. Lack of interest of students towards physics lesson 3. The difference between the ability level of students 4. The lack of confidence of students to ask the teacher 5. Reasoning students the wrong caused by information obtained is not complete so that students draw conclusions wrong. 6. students lazy to read textbooks
Textbook	1. Explanation of the material in the textbook incomplete 2. The language used in textbooks elusive students 3. The images used in the book fails to demonstrate the physics of material information to students How about the work man ship of the book is less clear
contex	1. Students are often distracted, unfocused, because a lot of thought, classroom noise, and friends who often invite conversation. 2. One in choosing friends discussions 3. Cheating without correcting back the answer
conten	The more difficult the students understand the material more difficult to understand the concept
Learning Resources	Students simply use the worksheets so that the lack of resources of books used by students
How to teach	Teachers teach using conventional method

Reference: Lusiana. N. (2015)

Implementation of Remedial Education with 5E Learning Cycle Approach (LC)

Learning is essentially remedial assistance for students who have learning difficulties or delayed. In connection with that, the steps that need to be done in the provision of remedial learning involves two main steps: first diagnose learning difficulties, and both provide treatment (treatment) remedial learning.

Having in minded the learning difficulties faced by learners, the next step is to give treatment in the form of remedial teaching. Forms implementation of remedial learning, among others:

a) The provision of re-learning the different methods and media. Re-learning can be delivered by way of simplification material, variations in the way the presentation, simplification tests/questions. Re-learning to do when most or all of the students have not reached mastery learning or learning difficulties. Educators need to provide an explanation back by using the method and/or a more appropriate medium.
b) Giving guidance specifically, for example, individual guidance. In terms of classical learning of students experiencing difficulties, need to have an alternative follow-up for the provision of guidance on an individual basis. Giving individual guidance are the implications of the role of educators as tutors. Tutorial system implemented when there are one or several learners who have not managed to achieve mastery.
c) Providing training tasks in particular. In order to implement the principle of repetition, the tasks need to be multiplied exercises that the students have no difficulty in doing the final test. Learners need to be given intensive training (drill) to help master the competency.
d) Use of peer tutoring. A peer tutor classmates who have the speed of learning more. They should be used to provide a tutorial to a colleague who is experiencing a learning delay. With peers expected of students who have difficulty learning to be more open and intimate.

LC is a series of stages of activities (phase) is organized in such way so that learners can master the competencies that must be achieved in learning with the active role.

Table 3: Syntax LC 5E Approach

Phase	**Learning Activities**
Engagement	1. The teacher creates a learning environment that is more responsive to condition means that students are better prepared to carry out learning activities. 2. The teacher explains the objectives, topics and learning outcomes are achieved by learners 3. Teacher explains the various principal activities to achieve learning goals 4. Teacher builds a beginning perception by asking students' opinions about the application of the concept of momentum and impulse in everyday life.
Exploration	Students collect learning resources that have been assigned to the search for reference from Handout, physics textbook, LKS etc.
Explanation	Teacher explains the material momentum and impulse and discusses concepts that often have misconceptions.
Elaboration	Students are invited to discuss some concepts that tend to have misconceptions with the guidance of teachers

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Evaluation	1. Students discuss the reasoning Multiple-choice open equipped CRI of momentum and impulse contained in the handout and apply what they have learned. In case of ambiguous students ask the willingness of teachers to guide the discussion questions. 2. Teacher draws conclusions on the material being studied and provides reinforcement to the concepts of momentum and impulse. 3. Teachers can conduct an evaluation by a test at the end of each stage. If not reach back to the dominant phase Learning Cycle runs into problems.

RESEARCH METHODS

The research was conducted from 25 July to 2 August 2016 for XII IPA.4 SMAN 4 Lubuklinggau of The Year 2015/2016, amounting to 32 students. The method used is descriptive qualitative. The instrument used was multiple choice questions with open reasoning comprising 20 items which include certainty of response index (CRI) and documentation.

RESULT

Remediation of misconceptions with 5E Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (previous investigators) and after remediation becomes 33.9% resulting in a decrease of 63.1%. After remediation approach 5E Learning Cycle obtained average percentage of students who know the concept has increased the percentage and added confidence in the answer selected by CRI. Likewise students' understanding of the concept of matter after remediation occurs achievement in understanding the concept of the right as shown in Table 4.

Table 4: Remediation Concept Training after using a diagnostic test

Physics concept	Misconception	misconception Percentage after Remediation
Concept of momentum	1. Momentum in the same with Force 2. Momentum in line with the speed and trajectory 3. Only objects that have large masses will have great momentum.	11.2% of students experiencing misconceptions
Concept of impulse realations	1. Impulse is the change of momentum 2. Objects that have a great impulse when mashing instantly destroyed	0% of students experiencing misconceptions
Concept of impulse and momentum	Momentum is equal with impulse	0% of students experiencing misconceptions
Concept of the law of conservation of	Do not understand the concept of the law on the concept of conservation of	7% of students experiencing misconceptions

momentum	momentum	
Concept of collision	1. Do not understanding the concept of perfectly elastic collisions. 2. Do Not understanding the concept of elastic collision portion. 3. Do Not understanding the concept of the collision is not elastic at all. 4. Many high school students think that if there are two cars collide, both cars will stop for a total of zero speed. 5. Assume that the speed is a scalar quantity so that the same v ± sign on. 6. Some students think that if the trains at the same speed but opposite direction collide, they will stop because the total speeds to zero. ($\Delta V = 0$). They forget that the conservation of momentum requires $\Delta m.v = 0$. Then if its mass difference they will not stop immediately.	15,7% of students experiencing misconceptions

CONCLUSION

The results showed that remediation of misconceptions with 5E Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (earlier researcher) and after remediation becomes 33.9% resulting in a decrease of 63.1%.

REFERENCES

Lusiana, N. M. (2015). *Analysis of Student Misconceptions Highlights Momentum and Impulse Class XII IPA.4 SMAN 4 Lubuklinggau in academic year 2015/2016. STKIP PGRI Lubuklinggau*. Unpublished Skripsi.

Sugiyono. (2013). *Quantitative Approach Educational Research Methods, Qualitative and R & D.* Bandung: Alfabeta.

Suparno, P. (2013). *Misconceptions & Changes in the Concept of Physical Education*. Jakarta: Grasindo.

Trianto. (2007). *Innovative Learning Models oriented Constructivistic*. Jakarta: Prestasi Pustaka.

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ANALYSIS OF STUDENTS IN LEARNING DIFFICULTIES IN CLASS VIII IPA SMP STATE IN LESSON 9 LUBUKLINGGAU YEAR 2015/2016

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Abstract

This study aims to determine the purpose of research which two general purpose is to describe the difficulty of students in science learning in class VIII SMP Negeri 9 Lubuklinggau Academic Year 2015/2016 and the specific objectives were to describe the causes of students experiencing difficulty in learning science in class VIII SMP Negeri 9 Lubuklinggau in the school year 2015/2016 in terms of counting and describing how to overcome the difficulties experienced by students in science learning in class VIII SMP Negeri 9 Lubuklinggau in academic year 2015/2016. The method used is descriptive qualitative. Data collection techniques that been used were diagnostic tests, documentation review, questionnaires and interviews. Data analysis techniques using the average deviation, percentage and percentage influence the level of difficulty. The results of this research that there is a learning difficulty IPA highest on the characteristics of the language and reading as much as 100%, the factors that affect student difficulties in learning science is very strong on factors tools as much as 43.47%, 43.47% total curriculum subsequent class condition, motivation and habits of students talking with friends, and overcome difficulties in the most powerful learning that was to raise the teaching methods of teachers so that students focus more on learning, giving additional tasks so that students can repeat material while at home, be taught how to access the internet is not only theory but also practice and provide intensive supervision of the use of the internet or the media for junior high school students, as well as the conditions and circumstances to strive for comfortable class for teaching and learning process.

Keywords: Analysis, Learning Difficulties.

INTRODUCTION

Learning difficulties experienced by junior high school students who are new to science were considered very complicated. Science that includes chemistry, physics and biology are described later in high school is a science that has been difficult for students. However, for junior lessons will be combined in one subject that is integrated IPA.

Results of preliminary observations have been conducted by researchers at SMP Negeri 9 Lubuklinggau in the second semester of grade VIII and interviews with the science teacher Ms. Eiva Healthy. A, a picture that: 1) Subjects IPA in class VIII for the second semester is devoted to the study of physics; 2) difficulties of studying science at the material in physics lessons experienced by many students, especially in numeracy difficulties which can be seen from the results of daily tests students' answer sheets on Material style, where there are 26 students from 35 students in the class VIII.5 get less results satisfactory; 3) Students tend to like about that simple or as complicated as a matter of IPA as the following example "Tina ran to school with a speed of 90 m/s within 300 second. What is the distance Tina to get to school?"For this problem child simply enter the number corresponding to the formula that is: Unknown: V (velocity) = 90 m/s, t (time) = 300 second, how much

distance (s)? Write distance formula like this: s =V. t; s = 90 m/s.300 second= 27000 m".

Thus, students do not need to add another formula in order to get the answers to the above, students only need to operate the calculations and get results as a result of the student's final answer; 4) the method used by the teacher during the learning process which only uses discussion and experimentation. Based on the above, the researchers are interested to do research in accordance with the above problems about: "Analysis of Difficulties Students in Science Class in Class VIII SMP Negeri 9 Lubuklinggau Learning Year 2015/2016".

Problem Formulation

Based on the above background, the formulations of the problem in this research are as follows:

a. How difficult for students to learn science in class VIII SMP Negeri 9 Lubuklinggau in the school year 2015/2016 in terms of calculating the (mathematical)?
b. What are the factors that cause students to experience difficulties in learning science in class VIII SMP Negeri 9 Lubuklinggau in the school year 2015-2016 in terms of counting?
c. How to overcome the difficulties experienced by students in science learning in class VIII SMP Negeri 9 Lubuklinggau in academic year 2015/2016?

Objective

a. Describing the difficulties of students in science learning in class VIII SMP Negeri 9 Lubuklinggau Academic Year 2015/2016 in terms of calculating the (mathematical)?
b. Describe factors that cause students have difficulties in learning science in class VIII SMP Negeri 9 Lubuklinggau in the school year 2015-2016 in terms of counting.
c. Describe how to overcome the difficulties experienced by students in science learning in class VIII SMP Negeri 9 Lubuklinggau in academic year 2015/2016.

REVIEW OF LITERATURE

According to RJ (2001: 21) research document analysis or content analysis is a systematic research done on records or documents as data sources. Based on some of these definitions, it can be concluded that basically the analysis is the method used in the study where researchers used the method to obtain the required data both data were taken from the records, tests, questionnaires, as well as documents as a data source in the study.

According Komalasari (2014: 1) the nature of learning is a change in a person's origin not knowing to knowing the result of the learning process. Basically learning is all activities performed by a person in order to achieve the goal of learning which leads towards that positive goal. According to Suryani (2010: 34) the difficulty of learning a wide variety of disorders in listening, speaking, reading, writing, and arithmetic for the individual internal factors itself, i.e. minimal brain dysfunction. Learning difficulties is a problem that students have the inability of students in learning.

Factors that cause learning difficulties students according Basiran (2012: 6) can be classified into two types namely internal factors and extern factors, namely:

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1. Factors Student Intern.
   These internal factors of students that matters or circumstances that arises from within the students themselves. Internal factors these students include disorders or psycho-physical shortage of students, according to Daulay (2010: 24), namely:
   a) Factors Physiology (because of a physical nature).
      The factors that cause learning difficulties are related to the lack of a functioning brain, nervous system or other body parts.
   b) Psychological factors (causes of learning difficulties because spiritual).
      The factors that cause learning difficulties are associated with less support feelings of the heart (emotions) children to learn seriously. Usually children are a subject well will please these subjects.
2. External Factors Students
   Covers all the circumstances surrounding environment is not supportive of student learning activities.
   a) Factor Family
      Family is the main educational center and the first, but it can also be referred to as the factors that cause learning difficulties.
   b) School Factors
      1) Teachers can be the cause of learning difficulties if it does not qualify in capturing methods used as well as in subjects holding.
      2) Tools lessons that did not make the presentation were not good. Especially subjects that are practical, lack of laboratory tools will cause a lot of difficulties in learning.
      3) The condition of the building is mainly addressed to the classroom or the room where the students' learning.
      4) A good curriculum, for example: materials too high.
   c) Factors Mass Media and Social Environment.
      1) Mass Media Factors include cinema, TV, newspapers, magazines, comic books.
      2) The social environment, for example a friend to hang out, which greatly affects the child's psyche.
      3) Environment neighbors. The style of life of the neighbors, for example, like to gamble, drink wine, do not love learning, will affect the children who attend school

According Djamarah (2008: 249) argues that in order to attempt to overcome the difficulties of learning can be done through six stages: data collection, the data analysis, diagnosis, prognosis, treatment, evaluation. Difficulty characteristics of children when learning math by Amilda (2009:153), namely: a disturbance in spatial relations, abnormalities in visual perception, visual-motor association, perseveration, knows the difficulties and understand the symbols, appreciation disorder of the body, difficulty in language and reading.

METHODS

Study Design

This type of research used in this research is descriptive qualitative research. This research approach uses qualitative and quantitative approach, which for quantitative located on the percentages used for the measurement scale diagnostic tests and questionnaires.

Subject Research

The population in this study were all students of class VIII, then the sample using purposive sampling techniques such as sampling phase 1 sample taken VIII.5 class, then the sample stage 2 students who have learning difficulties are reviewed documentation of counting using student test results in January by 23 students.

Procedures for Research

The stages are as many as six stages, but researchers only use four phases namely data collection, the data analysis, diagnosis, and prognosis.

Research Instruments

Phase 1

The instrument used daily documentation of the test results of students in January to produce a sample.

Phase 2

Instruments used diagnostic tests to analyze the students' learning difficulties in terms of count.

Phase 3

Instruments used questionnaires and interviews that have been validated by the validator 3 (2 lecturers STKIP-PGRI Lubuklinggau and one junior high school teacher in question) to analyze the factors that cause students experiencing learning difficulties.

Data Analysis

Analysis of the data used in the form of mean, percentage level of difficulty and the percentage of the factors that cause students experiencing learning difficulties.

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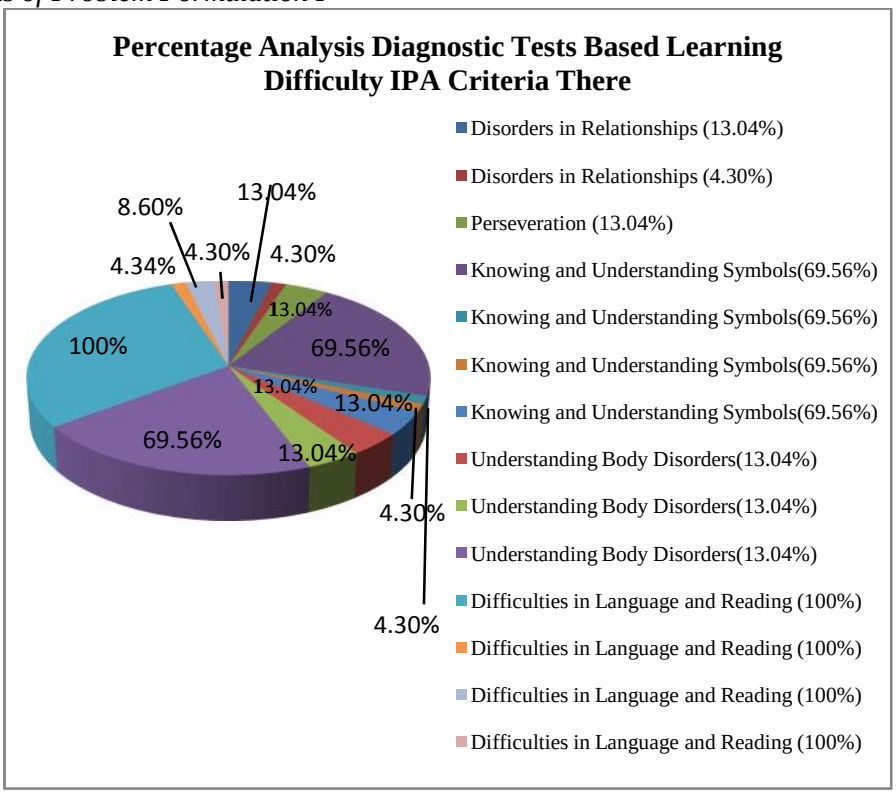
RESULTS AND DISCUSSION

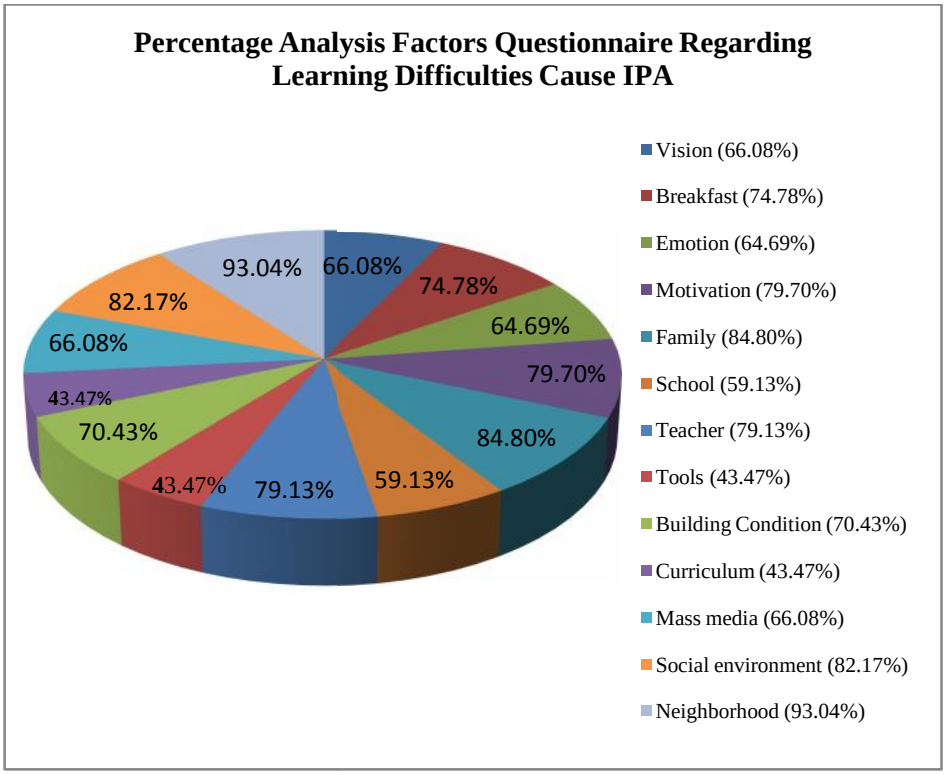
Results

Results of Problem Formulation I



From this analysis we can conclude the percentage level of difficulty for students to learn mathematics is seen from some of the criteria, then the very high percentage of 100% contained in the language and reading difficulties, a high percentage of 69.56% appreciation of the body found in disorder and recognize and understand the symbols, while other difficulties criteria have a low percentage rate.

Results of Problem Formulation II



Questionnaires were given researchers the students are used to determine the factors that cause students to experience difficulties in learning science is in terms of counting, which can be seen from the selection of the students' answers and calculated the percentage of influence on facto factors that cause students to experience difficulties in learning (Appendix C) that is a factor of students experiencing learning difficulties IPA can be seen from the calculation of the percentage and the reasons given students which factors have the criteria of low impact was found on the internal factors i.e. factors physiology such as breakfast and psychological factors motivated, then an external factor that is in the family and school (teacher). Furthermore, the factors that have considerable influence that the criteria contained in physiological factors and psychological factors that emotions/feelings of students, then external factors i.e. school (state building), and the mass media factor.

Furthermore, the factors that have a strong influence criteria and a very strong external factor was present in the school (tools and curriculum). Interview of the factors that shape classroom learning difficulties, motivation and habits of students talking with friends.

Results of Problem Formulation III

a. Analysis of the questionnaire with the percentage effect on efforts to overcome the difficulties of students in learning where the analysis yields: methods teachers as much as 61.73% (enough), school facilities 88.69% (weak), the mass media as much as 89.56% (weak) and conditions building as much as 89.56% (weak). It can be seen that the effort to overcome learning difficulties can be helped with the aid of the influence of factors add or add methods of teachers in the learning process of the students.

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b. Analysis of interviews with efforts to overcome the difficulties the students to learn that efforts to overcome difficulties in the most powerful learning that was to raise the teaching methods of teachers so that students focus more on learning, giving additional tasks so that students can repeat material while at home, be taught how to access the internet is not only theory but also practice and provide intensive supervision of the use of the internet or the media for junior high school students, as well as to strive for a comfortable condition and situation class and alter thought patterns physics student who always regarded physics is a difficult subject and always contains elements mathematically.

Discussion

From the analysis of diagnostic tests in the classroom learning difficulties IPA VIII.5 in SMP Negeri 9 Lubuklinggau levels of learning difficulties in terms of mathematical average score was 17.19 and then a percentage rate of learning difficulties IPA seen by indicators difficulty learning mathematics (calculating) the percentage rate difficulty is very high criteria for the 100% indicator difficulties in language and reading in (Figure 4.12), 69.5% higher criteria in appreciation disturbance indicator body on (Figure 4.10) and amounted to 69.56% on indicators to know and understand the symbols on (Figure 4.4), in addition to the criteria of learning difficulties in the relationship and perseveration disturbances produce the level of students' learning difficulties in the low category. So the researchers concluded difficulty in learning science student at the criteria contained mathematical language and reading difficulties, impaired body appreciation and recognize and understand the symbols.

In line with the results of research by Masroza (2013: 224) that students who have trouble counting is very difficult to conduct the count mathematically, students also difficult in solving problems related to mathematical processes such as add, subtract, divide, multiply, and difficult to understand the concept of a matter of numbers or sequences. Sometimes students also one disoriented as disorientation of time and direction.

From the results of questionnaire analysis the factors that cause learning difficulties in class IPA VIII.5 where for a percentage of influence that is contained in the internal factors include the physiology of 70.43% (breakfast for 74.78%), psychological factors (motivation 79.7 %), followed by 74.78% external factors include (a family of 84.8%, the school (teachers) amounted to 79.13%, and the factor of the mass media and social environment of 80.43% (82.17% of the social environment and neighbourhoods with a very weak category at 93.04). Then there is a sufficient percentage of the effect categories on physiological factors (visions of 66.08%), amounting to 69.05% of psychological factors include: (emotion of 64.69%), hereinafter external factors include the school (the building condition of 70.43%), mass media factor of 66.08%. Then the percentage of the effect of strong category contained on external factors (school of 59.13% which is very strong categories like tools by 43, curriculum as much as 47% and 43.4%). So the researchers concluded that the causes of the most influential science learning difficulties are the school tools and curriculum.

Analysis of the questionnaire used researchers to know the business can be done to overcome learning difficulties resulted in the percentage level of influence on

the students with enough categories that teacher's method of 61.73% and the weaker categories of school facilities 88.69%, 89.56% the mass media and conditions 89.56% of the building. So the researchers can conclude that the business can be done to overcome the difficulties of student learning by change or add methods teachers in physics, especially in the learning process.

Based on interviews conducted by researchers at the representatives of the research subjects to determine the factors that cause difficulty for students to learn science the terms of counting of 6 subjects the answers to most leading school facilities, mass media, where the influence of the school as the means less support in the learning process of students in school student, then the mass media such as the internet many students make as a game service rather than as a tool in the search for schoolwork and most students only understand in theory but not in practice, and others, the last lack of motivation that is in itself the students themselves to learn where students tend to prefer talking to friends than listening to the teacher explain the material.

In accordance with the results of the ocean, et al., (2014: 4) that the students considered physics lesson elusive as memorizing and contains a lot of mathematical elements. So students would rather talk with friends than listening to the teacher's explanations because of less motivation in which students assume physics is a difficult subject. Then attempt to overcome the difficulties of learning based on the interview can be a way to add methods to make students more focused on learning in the classroom where most students prefer to talk with a friend or even grab than listening to the explanation of the teacher and can also provide homework (homework) for students normally if it has been I was at home, students tend to live play, and not repeat the material being taught in schools.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

There is a science learning difficulties who reviewed the mathematical Seara highest on criteria of language and reading that is as much as 100% or as many as 23 students who are in class VIII.5. Factors affecting students' learning difficulties are very powerful tools as much as 43.47% as school facilities, curriculum as much as 43.47% subsequent class condition, motivation and habits of students talking with friends. Efforts to overcome difficulties in the most powerful learning that was to raise the teaching methods of teachers so that students focus more on learning, giving additional tasks so that students can repeat material while at home, be taught how to access the internet is not only theory but also practice and provide oversight intensive use of the internet or the media for junior high school students, as well as to strive for a comfortable condition and situation class and alter thought patterns physics student who always regarded physics is a difficult subject and always contains elements mathematically.

Suggestions

This study should be conducted on the subject larger studies with other indicators such as unit conversion, mastery of concepts, and others.

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REFERENCES

Abdurahman, Mulyono. (2003). *Pendidikan Bagi Anak Berkesulitan Belajar*. Jakarta: PT Asdi Mahastya. Jakarta: PT Rineka Cipta.

Amilda. (2009). *Kesulitan Belajar.* Palembang: Rafah Press.

Anwar, Cica. (2012). Meningkatkan Kemampuan Pemahaman Konsep Pecahan Sederhana melalui Media Kepingan CD (*Compact Disk*) bagi Anak Kesulitan Belajar. *Jurnal Ilmiah Pendidikan Khusus: Vol. 1, No. 3*.

Anderson, Lorin W., et al. (2010). *Kerangka Landasan untuk Pembelajaran Pengajaran dan Asesmen*. Yogyakarta: Pustaka Belajar.

Ardianto, Elvinaro. (2010). *Metode Penelitian untuk Public Relations.* Bandung: Simbiosa Rekatama Media.

Arifin, Zainal. (2013). *Evaluasi Pembelajaran*. Bandung: PT Remaja Rosdakarya Offset.

Arikunto, Suharsimi. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT Rineka cipta.

Basiran. (2012). Faktor-faktor yang Mempengaruhi Kesulitan dalam Belajar. *Jurnal Edukasi: Vol. 7, No. 1*.

B. Uno, Hamzah., et al. (2013). *Belajar dengan pendekatan Pembelajaran Aktif Inovatif Lingkungan Kreatif Efektif Menarik.* Jakarta: Bumi Aksara.

Daryanto. (2010). *Evaluasi Pendidikan*. Jakarta: PT Rineka Cipta.

Daulay, Wardaiyah. (2010). *Pengaruh Penerapan Terapi Kognitif Perilaku Terhadap Perubahan Pikiran dan Perilaku Anak Usia Sekolah Yang Mengalami Kesulitan Belajar Di SDN Kelurahan Pondok Cina Tahun 2010.* Tesis. Fakultas Ilmu Keperawatan Program Megister Keperawatan Kekhususan Keperawatan Jiwa Depok 2010.

Dimyati., et al. (2009). *Belajar & Pembelajaran*. Jakarta: PT Rineka Cipta.

Djamarah, Syaiful Bahri. (2008). *Psikologi Belajar*. Jakarta: PT Rineka Cipta.

Djamarah, Syaiful Bahri. (2010). *Strategi Belajar Mengajar*. Jakarta: PT Rineka Cipta.

Giancoli. (2001). *Fisika Edisi Kelima Jilid 1*. Jakarta: Erlangga.

Hamdani. (2011). *Strategi Belajar Mengajar.* Bandung: CV Pustaka Setia.

Komalasari, Kokom. (2010). *Pembelajaran Kontekstual*. Bandung: PT Refika Aditama.

Limardani, Gathut. (2015). Analisis Kesulitan Siswa dalam Menyelesaikan Soal Operasi Aljabar Berdasarkan Teori Pemahaman Skemp pada Siswa Kelas VIII D SMP Negeri 4 Jember. *Artikel Ilmiah Mahasiswa: Vol. I, No. 1* (pp. 1-7).

Maisaroh., et al. (2010). Peningkatan Hasil Belajar Siswa dengan Menggunakan Metode Pembelajaran Active Learning Tipe Quiz Team pada Mata Pelajaran Keterampilan Dasar Komunikasi Di SMK Negeri 1 Bogor. *Jurnal Ekonomi & Pendidikan: Vol. 8, No. 2*.

Marlina, Lisa dan Danica, Clara. (2009). Analisis Pengaruh *Cash Position, Debt to Equity Ratio,* dan *Return On Assets* terhadap *Dividend Payout Ratio. Jurnal Manajemen Bisnis: Vol. 2, No. 1* (pp. 1-6).

Pribadi, Benny A. (2009). *Model Desain Sistem pembelajaran*. Jakarta: PT Dian Rakyat.

Riduwan. (2012). *Dasar-dasar Statistika*. Bandung: Alfabeta.

Riyanto, Yatim. (2001). *Metodologi Penelitian Pendidikan. Surabaya*: SIC.

Samisih. (2014). Peran Guru Kelas dalam Menangani Kesulitan Belajar Siswa Sekolah Dasar melalui Layanan Bimbingan Belajar. *Jurnal Ilmiah Mitra Swara Ganesha: Vol. 1, No. 1*. ISSN: 2356 – 3443.

Satriani., et al. (2013). Persepsi dan Sikap Masyarakat terhadap Penerapan Program Pemberdayaan di Sekitar Sub Daerah Aliran Suangai MUI (Kasus Program SCBFWM di Desa Simoro Kecamatan Gumbasa Kabupaten Sigi). *Warta Rimba: Vol. 1, No. 1*.

Samudra, Gede Bandem., et al. (2014). Permasalahan-permasalahan yang Dihadapi Siswa SMA di Kota Singaraja dalam Mempelajari Fisika. *e-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi IPA,* 2014, 4.

Slameto. (2013). *Belajar dan Faktor-Faktor yang Mempengaruhi*. Jakarta: Rineka Cipta.

Sugiyono. (2011). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.

Suherman, Erman., et al. (1990). *Evaluasi Pendidikan Matematika*. Bandung: Wijayakusuma 157.

Suryani, Yulinda Erma. (2010). Kesulitan Belajar. *Magistra*, ISSN; 0215-9511, 2010, (73).

Young, Hugh D., et al. (2002). *Fisika Universitas Edisi Kesepuluh Jilid 1*. Jakarta: Erlangga.

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ANALYSIS MISCONCEPTIONS ON MATERIAL TEMPERATURE AND HEATUSING MULTIPLE CHOICE TEST WITH OPEN REASONING CERTAINTY OF RESPONSE INDEX (CRI) IN CLASS XSMAN 2 LUBUKLINGGAU 2013/2014

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Abstract

This study aimed to find out the misconceptions experienced by students in class X SMA Negeri 2 Lubuklinggau on material temperature and heat, misconceptions caused by the ability of the student, the causes of misconceptions and solutions to overcome misconceptions. In this study, research subjects totaling 24 students were taken in each class misconception or wrong concept refers to a concept that are inconsistent with the scientific understanding or understanding of acceptable experts in the field (Suparno, 2013:4). Misconceptions can be detected in various ways. To identify the occurrence of misconceptions, as well as to differentiate it does not know the concept, Saleem Hasan has developed an identification method which is known as CRI (Certainty of Response Index). This study uses descriptive method type of case study with data collection technique using multiple choice test with open reasoning equipped Certainty of Response Index (CRI) and interviews. Data analysis techniques in this study using descriptive statistics. The results of data analysis showed that, of the 18 items were used, students have misconceptions on the 17 items and the students do not know about the concept at one item. Low-ability students at the most experienced misconceptions compared to high-ability students and medium ability. Misconceptions caused by associative thinking, reasoning incomplete/wrong, wrong intuition, everyday language and a lack of understanding of the students. Solutions used to address misconceptions adapted to the cause of misconceptions.

Keywords: Misconceptions, multiple choices test with open reasoning, Certainty of Response Index, temperature and heat.

INTRODUCTION

Physics is the science that studies the nature and symptoms of the objects in nature. Events experienced in daily life it is an experience that made the original concept for students. Prior knowledge does exactly that, sometimes easily straightened out during formal learning at school, but sometimes very difficult (Suparno, 2013: 31) because, according Tayubi (January 1, 2014: 4) accidental has been consistently the concept of physics is wrong into the handle of his life. Based on observations of researchers at SMAN 2 Lubuklinggau on Thursday, April 17, 2014, researchers found that the physics teacher Class X SMAN 2 Lubuklinggau less explains physics concepts to students. Students rarely explained about how the process of obtaining a concept. This is due to time constraints. Learning like this make students proficient in quantitative work on the problems but difficulties in solving qualitative (about the form of the theory) that requires mastery of concepts in answering the questions. There are several ways that can be used to identify student misconceptions include multiple choice test with open reasoning and interviews. To identify the occurrence of misconceptions, as well as to distinguish it did not know

the concept, Saleem Hasan has developed an identification method known as CRI (Certainty of Response Index).

Based on the background of the problems that have been outlined above, the formulation of a common problem in this research is "How misconception experienced by students on the material temperature and heat through the test multiple choice with the reasoning equipped open Certainty of Response Index (CRI) in class X SMA 2 Lubuklinggau 2013/2014 school year?"

While the formulation of the specific problems in this research are 1) how misconceptions experienced by students on the material temperature and heat in grade X SMAN 2 Lubuklinggau if the terms of the results of the test multiple choice with the reasoning open equipped with Certainty of Response Index (CRI) and the interview? 2) How misconceptions experienced by high-ability students, medium and low on material temperature and heat in grade X SMAN 2 Lubuklinggau if the terms of a multiple choice test with open reasoning equipped with Certainty of Response Index (CRI) and the interview? 3) What is the cause of the misconception experienced by students on the temperature and heat the material in class X SMA 2 Lubuklinggau country? 4) How the solution can be used to overcome the misconceptions experienced by students in grade X SMAN 2 Lubuklinggau on material temperature and heat? The general objective of this study is to determine misconceptions experienced by students on the material temperature and heat through a multiple choice test with open reasoning come Certainty of Response Index (CRI) in class X SMAN 2 Lubuklinggau the academic year 2013/2014.

While the specific objectives of this research are 1) to determine the misconceptions experienced by students on the material temperature and heat in grade X SMAN 2 Lubuklinggau if the terms of the results of the test multiple choice with the reasoning open equipped with Certainty of Response Index (CRI) and interview 2) to determine the misconceptions experienced by students capable of high, medium and low on material temperature and heat in grade X SMAN 2 Lubuklinggau if the terms of the results of the test multiple choice with the reasoning open equipped with Certainty of Response Index (CRI) and interview 3) to determine the cause of misconceptions experienced by students on the temperature and heat the material in class X SMA country 2 Lubuklinggau 4) to find a solution that can be used to overcome the misconceptions experienced by students in grade X SMAN 2 Lubuklinggau on material temperature and heat.

After doing this study, researchers hope that the results of this research can provide benefits to learning physics, for students, teachers, schools, as well as for the researchers themselves. The researchers expected benefits for students that students can determine the extent of these students understand the concepts of temperature and heat. The benefits obtained a teacher is to provide information to teachers about the misconceptions on the concept of temperature and heat experienced by the students. This information can be used as input for teachers to know how to identify and analyze the misconceptions that can change the misconceptions of students towards scientific concepts and learning models or can choose appropriate learning strategies so that the learning process does not happened misconceptions.

Benefits for school, that school can get a picture of misconceptions experienced by students on the subject of temperature and heat in class X in the academic year 2013/2014 so as to improve the quality of teaching and learning process of students and the future is expected to produce graduates who are

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competent. And benefits for researcher is that it would provide a meaningful learning for researchers to be more careful in teaching the concepts of physics when it later became a teacher and for other researchers can be considered and referral similar research.

LITERATURE REVIEW

In Big Indonesian Dictionary (2008: 60-61), the analysis is defined as follows:1) The investigation of an event (bouquet, deeds, etc.) to find out the real situation (causal, sat his case, etc.);2) Decomposition of a subject on its various parts and a review of the part itself and the relationship of turf to gain proper understanding and the understanding of the overall meaning;3) Translation of assessed after as well as possible; and4) Solving the problems that began with the notion of a truth.

Misconceptions or wrong concept refers to one of the concepts that are inconsistent with the scientific understanding or definition accepted experts in that field (Suparno, 2013: 4). According Suwarto (2013: 76) misconceptions arise if the results of the students' knowledge construction do not match with the result of the construction of knowledge with scientists. Van den Berg (1991: 10) states that the misconception is disagreement students' conceptions with conceptions of the physicists. Researcher's misconceptions find different things can cause misconceptions in students. According Suparno (2013: 30-53), the cause of misconceptions in students are students, teachers, textbooks, context and methods of teaching.

Techniques for detecting misconceptions students according Suwarto (2013: 78-82) that is by using concept maps, descriptions written tests, clinical interviews and discussions in the classroom. Meanwhile, according to Suparno (2013: 128) technique to detect misconceptions that using concept maps (concept maps), multiple choice test with open reasoning, written essay test, diagnostic interviews, discussions in the classroom and practicum with a question and answer session. Besides this way, misconceptions can also be detected using diagnostic tests. According Zeilik in Suwarto (2013: 114), states that the diagnostic test used to assess students' understanding of the concept of key concepts (key concepts) on specific topics, in particular to the concepts that tend to incorrectly understood. Multiple choice test is one of the types of objective tests.

Multiple choice test with reasoning there are two kinds of multiple choice tests with open reasoning and multiple choice tests with specific reasoning (Suparno, 2013: 123-124). Multiple choice test with open reasoning is a test where students must answer and write why he has such an answer (Suparno, 2013: 123). On the test multiple choice with the reasoning opens students to freely give their reasons for choosing the answers so that researchers can find out misconceptions that occur in students through the answers and the reasons that have been given while in the test multiple choice with the reasoning of certain students are not free to reveal the reason for choosing an answer but reasons–the reason has been determined so the student choose one of the predefined reasons.

Certainty of Response Index (CRI) is a technique for measuring a person's misconceptions by measuring the level of confidence or certainty of someone in answering each question is given (Liliyawati and Ramlan, 2008: 4). One respondent experienced misconceptions or did not know the concept according Tayubi (January

1, 2104, 5-6) can be distinguished simply by comparing whether or not answer a question with certainty answer the high and low index (CRI) is given to that question.

CRI is based on a scale, for example, which is a scale of six (0-5). CRI exist in every answer students showed the confidence that he has in selecting the rules, principles and laws that have been embedded in determining the answer to a question.

There are four possible combinations of answer (right or wrong) and CRI (high or low). For a respondent and to a given question, the correct answer with a low CRI indicates not know the concept, and the correct answer with high CRI showed a high mastery of concepts. Answer wrong with low CRI indicates not knows the concept, while incorrect answers with high CRI indicates the occurrence of misconceptions. Four possible combinations of individual respondents and the group are shown in the following table.

Table 1: Provisions to distinguish between the ideas of the concept, misconceptions and did not know the concept of individual respondents

Criteria Answer	**CRI Low (<2,5)**	**CRI High (>2,5)**
Correct Answer	CRI low and the answer correctly means does not know the concept **(lucky guess)**	Answer correctly and CRI high means **mastering the concept well**
Incorrect Answer	The answer incorrectly and CRI low means does not know the concept	Answer incorrectly but high CRI high means there **misconceptions**

Saleem Hasan (5 January 2014, 296)

Table 2: Provisions to distinguish between the ideas of the concept, misconceptions and did not know the concept of the group of respondents

Criteria Answer	**CRI Low (<2,5)**	**CRI High (>2,5)**
Correct Answer	Answer correctly but the CRI average low means does not know the concept **(lucky guess)**	Answer correctly and CRI average High means **mastering the concept well**
Incorrect Answer	Answer incorrectly and the CRI average low means does not know the concept	Answer incorrectly but the CRI average high means there **misconceptions**

Saleem Hasan (5 January 2014, 296)

DATA AND METHODOLOGY

This study used a qualitative design. According Sugiyono (2012: 8), qualitative research methods are often called naturalistic research methods because research done on the state of nature (natural setting) and the research data is the data means that the symptoms observed Qualitative presented in the form of sentences, words or pictures. The purpose of qualitative research is to describe and analyze the phenomena, events, social activities, attitudes, beliefs, perceptions, thoughts people individually or in groups and some of the descriptions to find the principles and explanations that lead to the inference that are inductive (Ghony and Almanshur, 2012: 27).

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Therefore, this study used a descriptive method. According Ruane (2013: 19), the study offers an overview description or detailed report on social phenomena, background, experience group, etc. This research was conducted in the Class X SMAN 2 Lubuklinggau in the academic year 2013/2014. The study was held from April 21, 2014 through May 31, 2014. The subject of research in this study consists of 24 students from eight grades X SMAN 2 Lubuklinggau the academic year 2013/2014. Each class is taken three students consisting of high ability students, one student and one capable of being low-ability students. So that the subject is taken as many as 24 students of researchers consists of eight high-ability students, eight students and eight students capable of being less capable. The subject retrieval based suggestions of teachers according to the data value belonging to the subject teachers who teach physics in grade X SMAN 2 Lubukilnggau and ranking of students in the first semester.

Subjects were taken by purposive sampling technique. According Sugiyono (2012: 85), a purposive sampling technique is a sampling technique with a certain considerations. In this study, subjects were selected based on the ability of the students so that the subjects were divided into three strata are students capable of high, medium and low. Subject retrieval based on the student's ability that aims to determine misconceptions experienced by students due to the ability of the students. This study uses descriptive type of case study. Ghony and Almnshur (2012: 61-62) states that the case study is a research directed to collect data, extract meaning, and gain an understanding of the case.

Cases not at all representative of the population and is not intended for the conclusion of the population. Nevertheless, the research results can serve as an example for the next case. In this research, data collection techniques done in the following way:

1. Multiple Choice Tests with Open Reasoning Equipped with Certainty of Response Index (CRI)
   This test was developed by researchers with SBC based on the physics in 2006 from the Curriculum Center. Problem is given has been adapted to the syllabus and teacher competence achievement indicator physics class X SMAN 2 Lubuklinggau. Test instruments are arranged in the form of multiple choice questions with 5 option choices. Students must provide a reason why they chose the option is accompanied by a confidence level (CRI) students in selecting the option. Giving reasons for the chosen option aims to find any misconceptions that occur in students through the answers and the reasons that have been given while the Award aims to determine the confidence level of these students understand the concepts well, do not know the concept or have misconceptions.
2. Interview
   Interviews conducted by researchers with the aim to find out things about the misconceptions experienced by students in depth. Type of interview used is a structured interview because researchers have known for sure about what information will be obtained. The researcher has prepared interview guides that serve as an instrument in this study in the form of written questions that have been validated by experts.

According Sugiyono (2012: 233), in a structured interview, each respondent was given the same questions and record data collectors. In this study the researchers

interviewed the subject of his. Data analysis techniques in this study using descriptive statistics. Data analysis techniques in the study carried out by the following steps:

1. Analyze the students' answers on multiple choice tests with open reasoning comes CRI and interviews with the following steps:
   a. Determining the fraction of students who answered correctly or the fraction of students who answered incorrectly by using the following formula:

$$f_b = \frac{n_b}{T} \text{ and } f_s = \frac{n_s}{T}$$

(Saleem Hasan, 5 January2014, 296)
Information:
f_b= The fraction of students who answered correctly out of the total students
n_b= Number of students who answered correctly
f_s= The fraction of students who answered one of total students
n_s= Number of students who answered incorrectly
T= Total student

   b. Determine the average CRI search correct answers and wrong answers by using the following formula:

$$R_b = \frac{\Sigma C_b}{n_b} \text{ and } R_s = \frac{\Sigma C_s}{n_s}$$

(Saleem Hasan, 5 January 2014, 296)
Information:
R_b= average CRI value for correct answers
$\sum CRI_b$= Number of CRI value for correct answers
n_b= Number of students who answered correctly
R_s= average value of CRI for wrong answers
$\sum CRI_S$= Total value CRI for wrong answers
n_s= Number of students who answered incorrectly

2. By comparing the responses of the students with CRI, we can classify the students who didn't know the concept, master the concepts well and misconceptions.
3. Analyzing the causes of misconceptions, analyze misconceptions caused by the ability of students as well as solutions to overcome misconceptions on the material and the temperature of the heat.

Based on the analysis about the test instrument, of 24 items trials there are 18 items that can be used as test items to research for 6 items other consists of two items that are not valid and the four items were low validity that it is not used as items of research. Of the 18 items, 1 item has very high validity, eight items have high validity and 9 other items have a validity of items being. The result of the calculation of distinguishing, of the 18 items contained seven items that have the index criteria distinguishing very well, nine items have index criteria distinguishing good and two items have a distinctive enough power index. The result of the calculation of the level of difficulty on 18 test items are 1 items that have difficulty index criteria difficult matter, 9 items were have difficulty index criteria and the matter is being 8 items that have difficulty index criteria easy matter.

Based on the calculation of reliability on the 24 items with the KR-20 formula was result in the reliability value of 0.88 which means that instruments can be trusted to be used as a data collection tool for extremely high reliability criteria.

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Interview guidelines validated by two lecturers STKIP PGRI Lubuklinggau is Mrs. Tri Ariani, M. Pd. Si. and Mrs. Saparini, M. Pd. on Monday, May 19, 2014. Validation is done to look at the suitability of the material in the interview guides with temperature and heat the material, suitability interview guideline questions to test students' understanding of the concept of temperature and heat as well as the clarity of the language of the questions in the interview guides, Guidelines interviews consisted of 29 questions. Not all students who become research subjects were interviewed by investigators, only six students who were interviewed and consist of two high-ability students, two students and two students capable of being less capable.

Interviews conducted after all the students were given a multiple choice test questions with open reasoning equipped with CRI then newly selected six students as subjects to be interviewed. Six of the students interviewed the students most experienced misconceptions that can be seen from the reasons given students when answering test questions.

DISCUSSION

From the analysis of multiple choice tests with open reasoning equipped with Certainty of Response Index, amounting to 18 items, showed that student misconceptions in answering questions in Question 1 up to about number 17 and did not know about the concept at number 18. From the test analysis can be seen in Figure 1 below.

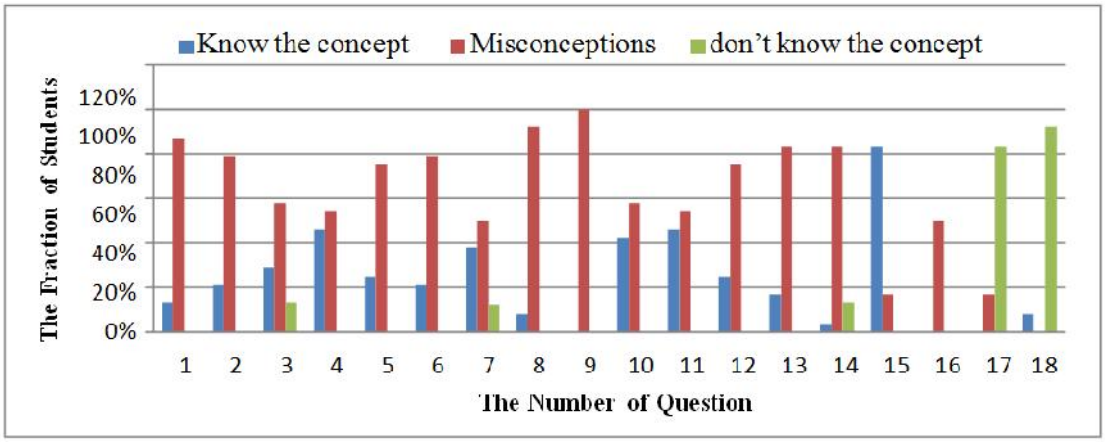

Figure 1: Graph of Percentage of Number of Students Knew Concepts, misconceptions and don't know Concepts

Student misconceptions in understanding the concept of heat, the concept of temperature (the temperature of the substance and determine the thermal equilibrium), the concept of heat (specific heat, heat capacity and the relationship between heat with temperature) and heat transfer (by conduction, convection and radiation).

The concept of the notion of heat

In Question 1, there were 13% of all students master the concept of understanding with good heat and 87% had misconceptions in understanding the concept of heat. The misconception is caused by the presence of associative thinking

that students associate students like the current temperature so the temperature can flow from one object to another. In addition, the misconceptions experienced by students were caused by incorrect reasoning because students assume that the objects contain the heat and the lack of students' understanding of the concept of heat. Problem number two is also testing the concept of understanding the sense of heat but served with a variety of different questions to Question 1. In question number 2, there are 21% of all students master the concept of understanding heat well and 79% of all students had misconceptions in understanding concepts heat.

Found misconceptions of the reason students are caused by lack of understanding of students about the concept of heat capacity. In addition, the misconceptions found to be caused by reasoning (reasoning) students who do not complete it due to information obtained or the obtained data is incomplete student. Students understand that heat is an energy that flows but the students did not understand when the energy flow. Question 3 is also testing the concept of understanding the sense of heat but served with a variety of different questions with the aim to explore the extent to which students understand the concept of the sense of heat. There are 29% of students master the concept of understanding heat well, 58% of students' misconceptions understanding of heat and 13% of students who do not know the concept. The misconception occurs because students associate that the specific heat has the same properties as heat.

The concept of temperature

In question number 6 almost all of the students also had misconceptions on the concept of temperature. There are 79% of students who have misconceptions and 21% of students who mastered the concept of temperature properly. The misconception is caused by intuition students wrong in determining the temperature of the substance. Other misconceptions are found on the reason students are students erred in determining the relationship between the heats with the masses. Same with the question number 6, students also having misconceptions caused intuition is wrong about the number 7.

Students assume the temperature as a variable that depends on the mass of the material being reviewed. There is a 38% student's master concept with good temperature and 50% had misconceptions on the concept of temperature. For about the number 8 that test the understanding of the concept of thermal equilibrium, there are 8% of students mastering concept well and 92% of students experiencing misconceptions on the concept of thermal equilibrium.

Misconceptions also because students assume that objects larger mass will absorb more heat energy so that the temperature is higher than the low-mass objects. In fact, the greater the mass of the body, the greater the amount of heat required to raise the temperature of the object. In addition, students also consider that the temperature as a variable that depends on the mass.

The concept of heat

In question number 9, there was 100% of students experiencing misconceptions about the concept of the specific heat. Misconceptions caused by students who intuited that the object has a larger specific heat will quickly absorb or receive the heat in a short time. According to physicists Specific heat is the heat required to raise/lower the temperature of 1 kg of a substance by 1 K or 1oC. That is the specific heat shows the amount of heat required to increase/decrease the temperature not indicate the speed of absorbing heat. In question number 10 on the

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concept of heat capacity, the number of students who know very well the concept is almost equal to the number of students who misconceptions. There are 42% of students who master the concepts well and 58% of students are misconceptions about the concept of heat capacity. Students are one of the number 9 would be wrong also in answering question number 10. Consistency students' answers show that the concept of the wrong kind of heat will affect students in studying the concept of heat capacity because the concept of specific heat related to the concept of heat capacity.

Other misconceptions are found on the reason students than caused by incorrect reasoning also colloquially students. The heat capacity is defined as the capacity or charge the same heat capacity meaning in everyday life. The heat capacity of heat but not the capacity of the heat capacity is the heat required to raise/lower the temperature of an object by 1 K or 1oC. Similarly, the number 10, at about number 11 some students also master the concepts well and partly experiencing misconceptions on the concept of the specific heat. There are 46% of students who master the concepts well and 54% of students who misconceptions about the concept of the specific heat. The concept of specific heat is used to answer question number 11 together with the concept of specific heat is used to answer question number 9.

In Question 12, there are 25% of students who master the concepts well and 75% of students who have misconceptions on the concept of heat capacity. The concept that students use in answering Question 12 were similar to the concept about the number 10. The heat capacity is defined as the capacity of heat. To Question 13, there are 17% of students who master the concepts well and 83% of students who have misconceptions on the concept of heat relationship with temperature. The misconception is caused by the student does not understand the concept of phase transition.

The concept of heat transfer

In question number 4 that test understanding of concepts of heat transfer by conduction, there are 46% of all students master the concepts of heat transfer by conduction well and 54% of all students had misconceptions on the concept of heat transfer by conduction. Just as misconceptions that occur on the number 1, students assume that the temperature can propagate or spread from one object to another. This means that these misconceptions caused by their associative thinking students. Problem number 5 also tests the understanding of the concept of heat transfer by conduction but served with a variety of different questions to Question 4. There is a 75% students had misconceptions on the concept of heat transfer by conduction and the remaining 25% of students master the concepts well.

The misconception is caused by the presence of associative thinking students are students associate the temperature as the heat can flow, the lack of students' understanding of the concept of temperature and heat and is caused by incorrect reasoning students about the notion of heat.

In question number 14, there are 13% of students who do not know the concept, 4% of students master the concepts well and almost all students (83%) experienced a misconception on the concept of heat transfer by conduction and convection. Students' misconceptions about heat transfer by conduction due to lack of understanding of students about heat transfer by conduction and convection. In contrast to the number 14, the number 15 almost all students (83%) mastered the concepts well (the concept of heat transfer by radiation) and 17% of students who

misconceptions about the concept of heat transfer by radiation. Misconceptions that occur in students caused associative thinking students.

Students associate the convection with radiation. The inability of students to distinguish between heat transfer by convection and radiation that makes students' misconceptions. Problem number 16 test conceptual understanding of heat transfer by convection through the sums. There are 50% of all students had misconceptions about the concept of heat transfer by convection in the form of sums. However, there are 12.5% of students who know the concept well and 37.5% did not know the concept and formula of heat transfer by convection.

The misconception is caused by a lack of understanding of students. For about the number 17, almost all of the students did not master the concepts of heat transfer by conduction in the form of sums. Students who do not master the concepts well (do not know the concept) were 20 students (83%) and students who misconceptions as many as four students (17%). Student misconceptions caused by ignorance of the students about the formula of heat transfer by conduction and students could not translate what was being asked by the matter. In question number 18, almost all of the students did not know the concept of heat transfer by radiation is being tested in a hierarchy sums. Only 8% of students who master the concepts and the remaining 92% did not know the concept of heat transfer by radiation. Students who answered incorrectly because students do not know the formula of heat transfer by radiation.

From the results of multiple choice tests with open reasoning comes with CRI low-ability students most experienced misconceptions compared with high and medium ability students. High ability student misconceptions on 14 questions, students were capable of misconceptions as many as 15 items and low-ability students' misconception as many as 16 questions. While the results of the interview, the six students as interview subjects experienced a misconception by 60%, to master the concept of fine of 28% and do not know the concept of 12%. The misconception occurs in the whole concept tested the concept of temperature, heat and heat transfer.

On the concept of temperature, students who have misconceptions by 80% while the students master the concepts well only 17% and did not know the concept of 3%. In the heat, there are 47% of students who have misconceptions while students who master the concepts well, only 36% and the remaining 17% are students who do not know the concept. For students' conceptions about heat transfer, students who have misconceptions by 50% while the students master the concepts well only 33% and there are 17% of students who do not master the concepts.

On the concept of temperature, high-ability students to master concepts with good temperature as much as 17%, experiencing misconceptions as much as 83%, and no one does not know the concept (0%). For students who are capable of being, there are 17% of students who mastered the concept of temperature well, 75% of students who have misconceptions and 8% who did not know the concept. As for the low-ability students, there are 17% of students who mastered the concept of temperature well, 83% of students who have misconceptions and no student who does not know the concept (0%).

On the concept of heat, high-ability students to master concepts with good heat as much as 36%, experiencing misconceptions as much as 57% and 7% of students who do not know the concept. For students who are capable of being, there are 21% of students who mastered the concept of heat well, 57% of students who

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have misconceptions as well as 22% of students who do not know the concept. As for the low-ability students, there are 43% of students who mastered the concept of heat well, 36% of students who have misconceptions and 21% of students who do not know the concept. As for the concept of heat transfer, high-ability students master the concept of heat transfer well as much as 17%, experiencing misconceptions as much as 83%, and no one does not know the concept. For students who are capable of being, there are 33% of students who master the concepts of heat transfer well, 50% of students who have misconceptions as well as 17% of students who do not know the concept. As for the low-ability students, there are 50% of students who master the concepts of heat transfer well, 17% of students who have misconceptions and 33% of students who do not know the concept.

The results showed the tendency of low-ability students most experienced misconceptions compared with high-ability students and being. However, not only low-ability students were experiencing misconceptions, but also high ability students were experiencing misconceptions. This finding is consistent findings in Suparno Davis (2013: 2) which states that some Harvard graduates, including graduates and some professors of physics, still carry misconceptions about the summer and winter. Gilchrist, Perez and Brown in Suparno (2013: 7) stated that misconception occurs in all levels of schools, from primary school up to college students. This means that everyone may experience misconception.

However, it is low-ability students tend to be more likely to have misconceptions. According Suparno (2013: 40), the ability of students also has an influence on student misconceptions. Students, who are less talented or less able physics into studying physics, often have trouble grasping the concept that is actually in the process of learning material even if teachers have communicated correctly. That's because that knowledge is constructed by the students themselves although the teacher had given the correct material, using appropriate methods and using the book easy to understand, but every student is different builds knowledge. It could be taught according to the teacher but can also be different from those taught by teacher. Before the students follow a formal process of learning physics at school, students are bringing the initial concept of physics. The initial concept they carry it sometimes does not correspond or conflict with the accepted concept of experts. The concept is not in accordance with the scientific concept called misconceptions or wrong concepts.

One of them, the researchers found that the heat capacity is considered as a charge or the ability to accommodate objects of heat. The misconception is caused by the sense of the capacity is used in everyday language used to define the heat capacity. The example it seems clear that the student is not a tabula rasa or blank paper that is clean, that the learning process will be written by their teacher. According to Clement in Suparno (2013: 6), the kind most common misconception is not misconception during the learning process, but an initial concept (preconceptions) which brought students to the formal classroom. Broadly speaking, the cause of misconceptions can be summarized into five groups, namely students, teachers, textbooks, context and methods of teaching.

The cause of that comes from students can consist of a variety of things, such as preconception (original concept), ability, stage of development of the students' cognitive, associative thinking, humanistic thinking, reasoning incomplete/wrong, wrong intuition and student interest. In this study, researchers found that

misconceptions experienced by students almost all come from the students themselves. Researchers concluded that because of the interviews the researchers with some subjects students, all declare that the textbooks of physics that it's easy to understand, easy to understand what is described teachers, often working on exercises, teachers often identifies the concepts of physics, often given homework, even those like physics.

Researchers tested the students' understanding of the concept, but with a wide variety of different problems. The goal is to see the consistency of the concepts used students. It turns in answering questions with the same concept but different variations, students also use the same concept for each question. Their consistency for the students' answers show that the concept given that student already implanted in the minds of students. Klammer in Tayubi (January 1, 2014, 4) stated their clear these misconceptions will greatly impede the process of acceptance and assimilation of new knowledge in students, so that would hinder the success of students in the learning process further.

CONCLUSION

Based on the analysis of research on misconceptions experienced by students on the temperature and heat the material in class X SMAN 2 Lubuklinggau in the school year 2013/2014, it can be concluded that:

1. All material temperature and heat tested and consists of the concept of temperature, heat and heat transfer experienced misconceptions. Based on a multiple choice test with open reasoning equipped with Certainty of Response Index, from the 18 questions tested, it contained 17 questions that misconception. The number of students misconceptions of each item because as much as 17% - 100% of 24 students. While the results of the interview, student's misconceptions as much as 60%.
2. The results of the analysis of a multiple choice test with open reasoning equipped with Certainty of Response Index, amounting to 18 items showed that high-ability students experiencing misconceptions about the total of 14 (78%), students who are experiencing misconceptions capable of 15 questions (83%) and student low performance experienced a misconception as many as 16 questions (89%). Interviews showed that both students capable of high, medium and low are also experiencing misconceptions by the number of students who misconceptions greater than 15% in each section tested.
3. Factors causing student misconceptions that occur in about 99% of each item are caused by the students themselves. Misconceptions caused by the students themselves, namely the ability of the student, associative thinking, reasoning incomplete/wrong, intuition is wrong and the lack of students to the concept. Besides the misconceptions caused by the students themselves, misconceptions are also caused by everyday language students.
4. Solutions to address student misconceptions can be done by finding or revealing misconceptions do student, trying to find the cause of the misconceptions and seek the appropriate treatment to address misconceptions.

REFERENCES

Ghony, M. Djunaidi and Fauzan Almanshur. (2012). *Qualitative Research Methodology*. Yogyakarta: Ar-Ruzz Media.

ISBN 978-602-73030-1-0

Hasan Saleem. (1999). *Misconceptions and the Certainty of Response Index (CRI)*. Retrieved from http://iopscience.iop.org/0031-9120/34/5/304.

Ruane, Janet M. (2013). *Fundamentals of Research Methods of Social Science Research Guide*. Bandung: Nusa Media.

Sugiyono. (2012a). *Quantitative Research Methods, Qualitative and R & D*. Bandung: Alfabeta.

Sugiyono. (2012b). *Statistics for Research*. Bandung: Alfabeta.

Suparno, Paul. (2013). *Changes in the Concept of Physical Education*. Jakarta: Grasindo.

Suwarto. (2013). *Development of Diagnostic Tests in Learning*. Yogyakarta: Student Library.

Van den Berg, Euwe. Misconception. (1991). *Physical and Remediation*. Salatiga: Universitas Kristen Satya Discourse.

Winny Liliawati and Taufik Ramlan. (2008). Identification of the material misconception IPBA in high school by Using CRI (Certainly of Response Index) in Effort to Repair and material development IPBA at SBC. *Research Report Guidance UPI*. Bandung: UPI Research Institute.

THE LEARNING MODEL OF VOLLEYBALL UNDER SERVICE FOR JUNIOR HIGH SCHOOL AGE

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Abstract

The purpose of this research and development is to produce the learning model of volleyball under service for junior high school age. In addition, research and development is conducted to obtain in-depth information about the development and application of the learning model of volleyball under service for junior high school age and determine the effectiveness, efficiency and attractiveness of the model created child. This research uses development methods research & development (R & D) from Borg and Gall. Subjects in research and development are the students of junior high school consisting of 60 children.

The Instruments that used in this research and development is a questionnaire, as well as the instrument volleyball service test that used to collect the volleyball under service data for junior high school age. As for the stages in research and development are: (1) analysis of needs, (2) the expert evaluation (initial product evaluation); (3) limited trial (small group testing); and (4) the main trial (field testing). The effectiveness model test used under service test to know the level of volleyball under service ability for junior high school age before giving treatment such as under service model that developed and to determine the under service ability after treatment or under service treatment that developed, from the initial tests were conducted obtained the student under service level are 3956, then after being given treatment in the form of under service model. The student under service obtained the ability level are 5572. Accordingly this volleyball under service mode is effective to raise the learning model of volleyball under service for junior high school age.

Based on the results of the development can be concluded that: (1) whit the volleyball learning model under service for junior high school age can be developed and applied in physical education learning at schools (2) the volleyball learning model under service for junior high school age which have been developed, acquired evidence of this improve went is shown in the result testing data from pretest and posttest there is significant difference between before and after the development of a model.

Keywords: Development, Model, Under Service

INTRODUCTION

Background

Volleyball is a sport that is a compulsory subject in physical education subject which should be taught in school. Students involvement in volleyball learning program is expected to be able to help optimize students' development and growth, improve students' physical fitness components, such as: strength endurance, power, flexibility, agility, balance, and motoric coordination. In addition to developing the physical aspects, learning volleyball is also expected to develop the mental aspects, such as motivation to learn, confidence, courage and discipline, tolerance and cooperation which are the social aspects also expected to undergo a change for the better.

There are so many ways and methods of innovation that can be done to improve learning outcomes in the subject of physical education, both in terms of innovation of learning infrastructure, teaching methods, approaches in the learning

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process, and so forth. In the process of physical education learning, the teachers are expected to be able to provide a thorough knowledge and science. In the learning process of physical education, teachers should pay attention to the characteristic of age at each level of education because the learning design of physical education refers to the ability skill according to the phases of child development theory.

Weakness in physical education often occurs in developing models which is monotone that makes the students experience boredom in participating in physical education subject.

So it is expected that in using these models, the physical education teacher can synchronize with the condition and situation faced by the students. Making the right development model about the volleyball underhand serve subject in which the movements are divided into: first movement, performance movement, and advance movement. Related to the statements mentioned above, then it shows that the volleyball underhand serve model needs to be developed, which later can be used as a solution to help students learn about underhand serve more effectively.

Based on observations and interviews which were done by the author with the physical education teacher, facts as follows are found: The learning process of volleyball underhand serve in junior high school went well, but not all subjects instructed by the curriculum can be implemented, the method taught in teaching is still conventional, objective learning has not been reached with the indicator of students motion adequacy has not been met, and students' motoric skill is not included in good category, facilities and infrastructure for learning volleyball is still lacking, volleyball learning program applied to the intracurricular activity still refers to volleyball training program which emphasizes achievement.

Efforts to solve the problems in learning volleyball underhand serve are as described above, therefore the research and development of volleyball underhand serve learning model for junior high school students are important.

THEORETICAL STUDY

Theoretical Description

Model

Model is defined as a conceptual framework that is used as a guideline in conducting activity. The model can be perceived as: (1) a type of design; (2) a description or analogy used to help visualization process of something that can not be directly observed; (3)a system of assumptions, data, and inferences used to mathematically describe an object or event; (4) a simplified design of a working system, a simplified translation of reality; (5) a description of a system that may be imaginary; and (6) minimized data presentation in order to explain and demonstrate the nature of its original form. Komarudin (2000:100).

Model interpreted as a conceptual framework which can not be used easily as a guide or reference in activity. The basic model is used to demonstrate generic model, which means general and fundamental used as the starting point of advanced model development in terms of a more complex and newer. Harjanto (2008:51). The conceptual model is a model that is analytical, mentioning the components of the product, analyzing the components in detail and showing the relationship between the components that will be developed. The theoretical model is a model that draws a

framework of thinking based on the theories that are relevant and supported by empirical data.

Learning

Suyono and Hariyanto statet that "learning is an activity or a process to acquire knowledge, develop skill, improve behavior, attitude, and strengthen the personality." Suyono and Hariyanto (2011: 9).

Hamid stated that very important learning characteristics are as follows:

"(1) learning conducted consciously and has a purpose. The objective is used as the direction of activity as well as the measure of learning success, (2) learning is an experience in itself, can not be delegated to others. Thus, learning is individual, (3) learning is a process of interaction between the individual and the environment. This means that the individual must be active when exposed to a certain environment. This effectiveness is realized because each individual has a variety of learning potential, (4) learning resulted in a change of those who learn. The change is integral, meaning that the change in cognitive, affective, and psychomotor aspect can not be separated from one another." Hambani Hamid (2013: 16).

Physical education is an education done through physical activity as a "bridge" to reach the goal. To achieve the goal, it would require the innovation of learning model. The development of learning model is one form of approach system application in learning activity that in fact a study of a systematic process that results in a learning system which is ready to be used appropriately. Prior to innovation in education, a student must be equipped with modality to do the process of learning itself.

Volleyball

According to Ahmadi, "Volleyball is a complex game which is not easily played by everyone, because a volleyball game needs a very supportable motoric coordination to perform all the movements that exist in a volleyball game." Nuril Ahmad (2007: 20).

Barbara L. Viera and Bonnie Jill Ferguson stated the advantages of volleyball game, among others:

(1) It is adaptable to various conditions that may present themselves, (2) It can be played with any number on a side from two, which is extremely popular in the beach game, to six. which is the number used for interscholastic, intercollegiate, junior, and club play, (3) It can be played and enjoyed by all ages and ability levels, (4) It can be played on many surfaces-grass, wood, sand, and various artificial surfaces, (5) It is an excellent co-ed activity, (6) It is an exciting spectator sport, (7) It can be played indoors or outdoors, (8) It is an extremely popular recreational activity with numerous leagues in business,community, and school intramural programs, (9)It requires few basic rules and skills, and (10) It has limited equipment needs. Barbara L. Viera & Bonnie Jill Ferguson (2010: 49).

Robert B. Gardner stated that "*Volleyball is a game played by two teams consisting of six players on a rectangular court separated into two areas by a net with an inflated ball"*. Robert B. Gardner (2014: 14).

Volleyball Serve

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Beutelstahl explained "technique is a procedure that has been developed based on the practice and aims for the settlement of a certain movement problem in a way that the most economical and useful." Dieter Beutelstahl (2008: 8).

One of the basic techniques in volleyball game is serve. Yusuf Hidayat, Sindu Cindar Bumi and Rizal Alamsyah said that "a serve in volleyball game is a starting blow to put the ball into opponent area. Besides, a serve is a blow to begin. Yusuf Hidayat (2010: 2).

Whereas according to Suhadi and Sujarwo, "The serve is the act of putting the ball into play. It is conducted by backfield player, conducted behind the service line by hitting the ball with one hand in such a way that the ball can fly across the net to the opponent area." Suhadi and Sujarwo (2011:29). Serve according to Clemens is "*The serve is not just a method to initiate play in volleyball. Consider it the first offensive weapon of the game"*. Teri Clemens and Jenny McDowell (2012: 9).

Physical Education

Husdarta states "physical education and health education are essentially educational process that utilizes physical activity and health to produce a holistic change in the quality of the individual, both in the physical, mental, and emotional. H. J. S Husdarta (2011: 3).

A teachershould be able to design how the learning process can be implemented and achieve educational goals. Physical education is a process of learning through physical activities designed to enhance physical fitness, develop motoric skill, knowledge and behavior of healthy and active life, sportsmanship, and emotional intelligence.

Motoric Skill

According Widiastuti, motoric skill is as a capacity of a person related to the implementation of the physical ability to be able to carry out a movement, or can be defined that the motoric skill is the capacity appearance of someone to perform a motion. Widiastuti (2011: 165).

Schmit gives a clearer picture about the study of motion or commonly called the *motor learning* by stating that the motion learning is a series of processes that are associated with training or experience that lead to changes which is relatively permanent in one's ability to show movement of skilled movements. Richard A. Schmidt (2000).

Model Fitt and Posner in Richard A. Magill explained that the learning stages of motion are divided into three different stages, they are: the cognitive stage, the association stage, and the autonomous stage, and this stage is determined by the behavior tendencies of students which are demonstrated at various points during learning process. Fitt and Posner (2011: 266).

Characteristic of junior high school students

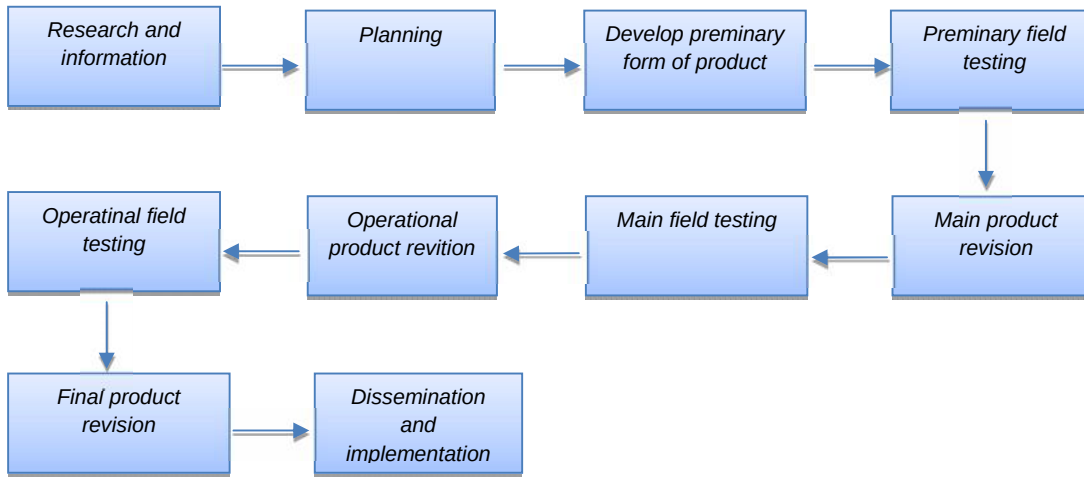
The characteristic of junior high school students ranging from 14-15 years. Development during this period belongs to adolescence. Sugiyanto et al mentions "Adolescence is a period of transition from childhood into adulthood." Sugiyanto (2007: 176).

Here are the results of research on the development of physical abilities in adolescence:

(1) Muscle power is the ability to exert strength and speed collectively achieves optimal level approximately 1 year after the achievement of maximum body size growth. (2) In adolescence, a good aerobic program implementation can improve cardio respiratory capability up to 20%. Husdarta and Nurlan Kusmaedi (2010: 71).

Design Model

The design of development product of underhand serve learning form in volleyball quoted from Borg and Gall has steps as follows:



Development Model R & D Picture

Source: Borg. W. R & Gall, M. D, *Educational Research An Introduction* (New York: Longman,1983), h. 775.

RESEARCH METHODOLOGY

Research Purposes

Research and development of volleyball underhand serve model for junior high school students particularly have several objectives, among others:

1. To develop and implement volleyball underhand serve model for junior high school students.
2. To obtain empirical data on the effectiveness of development result of volleyball underhand serve for junior high school students.

The final purpose of this development research is to produce books on the under-part service in the volleyball sport for junior high school students and the books will then function as the supplement for the current learning assistant. The expected learning should be:

1) effective: the books are the supplementary tools in intensifying the junior high school students' effectiveness and easiness to develop the skill of the volleyball under-part service.
2) attractive: The books are the attractive supplementary tools which could encourage the students to learn more.

The Developed Characteristic Model

1. Target of Study

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Users becoming the target in the developed model study on the volleyball under-part service are:

a. Junior high school students
b. The 13-15-year-old Students (homogen subject) are assumed to facilitate the test of product.

2. *Subject of Study*

Random sampling is used to obtain the subjects of study. The subject criteria of the study are explained as follows:

Table Study Subject Table

No	Steps of Study	Number of Subject	Criteria	Instrument
1	Prelimenary study	3	• 3 sport teachers	- Interview
2	Expert Evaluation	3	• 3 volleyball experts	- 35 models
3	Test of Product a. Small group try-out b. Field try group	 10 60	 • 10 junior high school students • Limited-scale evaluation with 60 Jakarta junior high school students	 33 models 33 models revised development
4.	Effectiveness test of product	60	• 60 junior high school students	33 models

Study Method and Approach

The research development on volleyball under-part service used the Research and Development written by Borg and Gall with ten steps of study, all of which are: (1) Research and information collecting, (2) Planning, (3) Development of the preliminary from of product, (4) Preliminary field testing, (5) Main product revision, (6) Main field test, (7) Operational product revision, (8) Operational field testing, AND (9) Final product (10) Dissemination and implementation. Borg W. R & Gall, M (1983: 775).

Steps of Development Model

The final outcome of this study is the learning model of the volleyball under-part service for junior high school students, producing the complete learning method with its product specification. The effectiveness of the learning model could be examined to motivate students to study and the learning model could also be the teachers' guide in providing the volleyball under-part service. Qualitative and quantitative approaches were used in this study and the development model was the Research and Development written by Borg and Gall with ten steps of study.

STUDY RESULT

Model development

The result of the development model on the volleyball under-part service for junior high school students were written in the form of manuscript which will be provided in the volleyball under-part service model.

1. Needs Analysis Result

There are two general purposes which will be revealed in the preliminary study or needs analysis. They are: (a) to what extent the learning development model on the volleyball under-part service for junior high school students is important, and (b) what obstacles and supports could occur in the learning development model on the volleyball under-part service for junior high school students.

The developed model of the volleyball under-part service was the result of the problem encountered by the writer. The writer observed and interviewed the junior high school sport teachers. The general purposes of the development model on the volleyball under-part service for junior high school students were obtained from observation and interview. In addition to general purposes, some characteristics of subjects for the volleyball under-part service could be developed.

2. Result of Needs Analysis Data

The result obtained from the data collected by interviewing and distributing questionnaires to sixty students were then processed and described. The formulation of study towards students was conducted in January 2016, making the needs analysis for junior high school students. The outcome of the needs analysis shows that (1) students feel excited with the learning of physical exercise, (2) students have yet to receive the learning models on the volleyball under-part service, (3) students are satisfied with the learning material on the volleyball under-part service, (4) students get bored with various learning on the volleyball under-part service, (5) students approve the would-be developed models on the volleyball under-part service for junior high school students.

Feasibility Model

After the collection of data and the making of a draft model on the volleyball under-part service, the examination of expert was committed to discover the model validity made with a direct valuation of the experts.

CONCLUSION

Based on data collection, field test and on result study discussion, it is concluded that: (1) the volleyball under-part service model could encourage the junior high school students to learn it effectively and efficiently, and (2) the developed model on the volleyball under-part service provides the junior high school students with full and proper understanding on the volleyball under-part service.

Implication

The learning model on the volleyball under-part service could provide goal of the positive contribution in achieving the goal of the learning. Besides improving the students' ability in the volleyball under-part service, the learning model functions to motivate students to join the various learning. Based on this, the volleyball coaches may apply this learning model to improve the practice and learning.

Suggestion

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Following is the suggestions for the developed result of the study; they are the usefulness suggestion, dissemination suggestion, and the future development suggestion.

Usefulness Suggestion

Volleyball coaches, volleyball players, teachers and students may make use of this developed product model for junior high school students. Situation, condition, structure and pre-structure should be the considerable components

Dissemination Suggestion

In order to make public this learning model, there are some suggestions to be considered. Make sure that this product is already in both good performance and content. In order that the volleyball under-part service for junior high school students is usable, make sure to make lots of copies so that the users will obtain good knowledge on it.

Suggestion for Future Development

Suggestions for future development are as follows: (a) The study subject should be conducted to a wider subject either at junior high schools or volleyball clubs, excluding those for a trial; and (b) The result of this model could be distributed to junior high schools and volleyball clubs.

REFERENCES

Ahmadi, Nuril. *Panduan Olahraga Bola Voli*. Surakarta: Era Pustaka Utama, 2007.

Badriah, Dewi, *Metodologi Penelitian Ilmu-Ilmu Kesehata*n, Bandung: Multazam, 2012.

Barbara L Viera & Bonnie Jill Ferguson. *Volleyball Step to Success Second Edition.* Canada: Human Kinetics, 2010.

Benny A. Pribadi. *Model Desain Sistem Pembelajaran.* Jakarta: Dian Rakyat, 2010.

Beutelstahl, Dieter. *Belajar Bermain Bola Volley*. Bandung: Pionir jaya, 2008.

Borg. W. R & Gall. M. D. *Educational Research An Introduction*. New York: Longman, 1983.

Branch, Robert Maribe. *Instructional Design: The ADDIE Approach,* New York: Springer, 2009.

Cheryl A. Coker, *Motor Learning and Control for Practitioners.* New York: McGrawHill, 2004.

David L. Gallahue and John C. Ozmun. *Understanding Motor Development: Infants, Children, Adolescents, Adults.* New York: McGraw Hill, 2006.

Deborah A. Wuest and Charles A. Bucher, *Physical Education, Exercise Science, and Sport.* 16th Edition. New York: McGraw-Hill Co, Inc, 2009.

Decaprio, Richard. *Aplikasi Teori Pembelajaran Motorik di Sekolah.* Jogjakarta: Diva Press, 2013.

Dick Walter, Lou Carey and James O. Carey. *The Systematic Design of Instruction*, New York: Allyn & Bacon. Published by Allyn and Bacon. Boston, MA, 2009.

Dimyati and Mudjiono. *Belajar dan Pembelajaran.* Jakarta: Rineka Cipta, 2006.

Hamid, Hamdani. *Pengembangan Sistem Pendidikan di Indonesia.* Bandung: Pustaka Setia, 2013.

Harjanto. *Perencanaan Pengajaran.* Jakarta: Rineka Cipta, 2008.

Husdarta. *Manajemen Pendidikan Jasmani*. Bandung: Alfabeta, 2011.

Husdarta and Kusmaedi, Nurlan. *Pertumbuhan dan Perkembangan Olahraga dan Kesehatan*. Bandung: Alfabeta, 2010.

Jim Lavin. *Creative Approaches to Physical Education Helping Children to Achieve Their True Potensial*. Canada: Routledge, 2008.

Kadir. *Statistik Untuk Penelitian Ilmu-Ilmu Sosial,* Jakarta: Resamata Sampurna, 2010.

Komarudin. *Kamus Istilah Karya Tulis Ilmiah*. Jakarta: BumiAksara, 2000.

Kemenegpora. *Undang-Undang Republik Indonesia Nomor 3 Tahun 2005 Tentang Sistem Keolahragaan Nasional.* Jakarta: Kemenegpora, 2011.

Maksum, Ali. *Metode Penelitian dalam Olahraga*. Surabaya: UnesaUniversity Press, 2012.

Muhajir. *Pendidikan Jasmani Olahraga & Kesehatan,* Bandung: Ghalia Indonesia Printing, 2007.

Musfiqon HM. *Pengembangan Media dan Sumber Belajar*. Jakarta: Prestasi Pustaka, 2012.

Papageorgiou, Athanasious. *Volleyball a Handbook for Choach and Player.* USA: Meyer and Meyer Sport, 2002.

Richard A. Magill, *Motor Learning and Control: Concepts and Aplications.* New York: McGraw-Hill, 2011.

Richard A. Schmidt, Craig A. Wrisberg, *Motor Learning and Performance,* 2nd Edition. United States: Human Kinetics, 2000.

Setyosari, Punaji. *Metode Penelitian Pendidikan dan Pengembangan* Jakarta: Prenada Media Group, 2013.

Sugiyanto, et al. *Perkembangan dan Belajar Motorik.* Jakarta: Mendikbud, 2007.

Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif dan R & D.* Bandung: Alfabeta, 2013.

Sugiyono, *Motode Penelitian Bisnis, pendekatan kuantitatif, kualitatif dan R&D*, Bandung: Alfabeta, 2010.

Sugiyono, *Metode Penelitian & Pengembangan Research and Development*, Bandung: Alfabeta, 2015.

Sukmadinata. *Metode Penelitian Pendidikan*, Jakarta: PPs UPI dan PT Remaja Rosdakarya, 2005.

Sumantri, Mulyani and Syaodih, Nana. *Perkembangan Peserta Didik.* Jakarta: Universitas Terbuka Departemen Pendidikan Nasional, 2007.

Suparman, Atwi. *Desain Instruksional Modern*, Jakarta: Erlangga, 2014.

Suyono and Hariyanto. *Belajar dan Pembelajaran Teori dan Konsep Dasar* Bandung: PT. Remaja Rosdakarya. 2011.

Syah, Muhibbin. *Psikologi Pendidikan.* Bandung: PT. Remaja Rosdakarya, 2014.

ISBN 978-602-73030-1-0

Tangkudung, James. *Kepelatihan Olahraga Pembinaan Prestasi Olahraga*. Jakarta: Cerdas jaya, 2006.

Tim Puslitjaknov. *Metode Penelitian Pengembangan*. Jakarta: Pusat Penelitian Kebijakan dan Inovasi Pendidikan Badan Penelitian dan Pengembangan Departemen Pendidikan Nasional, 2008.

Trianto. *Model Pembelajaran Terpadu dalam Teori dan Praktek,* Surabaya: Pustaka Ilmu, 2007.

Widiastuti. *Tes dan Pengukuran*. Jakarta: PT Bumi Timur Raya, 2011.

Hidayat, Yusuf, et al. *Pendidikan Jasmani Olahraga dan Kesehatan*. Jakarta: Pusat Perbukuan. Kementrian Pendidikan, 2010.

TRAINING AND DEVELOPMENT AS AN EFFORT TO REDUCE EMPLOYEE ATTRITION RATE IN A MULTINATIONAL IT COMPANY

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Abstract

Employee attrition rate in multinational IT Company has impact on the company. This employee attrition rate was caused by several factors such as salary. Training and development program also becoming one of the reasons why employees leave the company. This article will describe about how training and development program should be developed so that it will reduce employee attrition rate.

Keywords: employee attrition rate, training and development, multinational IT Company.

INTRODUCTION

Wipro Limited is a leading IT company in India with high attrition rate compared to other IT companies. The high attrition rate will impact on the company, specifically impact on the profit of the company. There are several factors that cause Wipro employee leaves the company, salary is one of them. The other things are the training and development which were deemed unsatisfactory for employees (Shanmugam, 2012). Shanmugam research results, in 2012 there were 50% of employees who feel only some extents of the training and development at Wipro relevant to the industrial world. For employees aged between 20-30 years, they feel the training and development as a priority, because this age group was familiar with technology and were able to learn independently. For the age group 30-40 years, they felt a high need for training and development. They rank training and development in the second, after salaries, as a determining factor in employee retention. With this background, it is necessary to dig further into training and development as an effort to increase the retention rate of employees (employee retention rate).

DISCUSSION AND CONCLUSION

Wipro Limited

Wipro Limited (Western India Products Limited) is a multinational company in the field of information and communication technology. Headquartered in Bangalore, India, Wipro has a total of 158 200 employees (data for March 2015), serving more than 900 clients in 67 countries. Azim Premji is the chairman of Wipro which made Wipro from a cooking oil company into a leading IT company in India. Wipro assets as of March 2015 was US$ 35 billion, making it one of the largest IT companies in India and the seventh largest in the world (BSE India, 2015). Approximately 8.5% of the employees were non - India. The average age of the employees in Wipro was 29 years old.

The company has set standards to ensure the best in learning and development for its employees. Wipro, has won the Best Award from the American Society for Training and Development (ASTD) for six times in a row (this was the highest compared to other companies around the world). The award was obtained for

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the implementation of development and learning in the training of the company (TEQIP, 2013). Wipro spent 4% of total revenue in employee training and development. The company has ten learning facilities in six cities in which 5000 people were trained. Training centers have 110 trainers who provide training in human resources, leadership skills, behavioral skills and training of cross - cultural.
About 1.2 million people applied to Wipro each year, but less than 20,000 were accepted. Wipro recruiters come to 150 colleges around India every year and only provide aptitude tests for an excellent student. They set aside relatively little to-face interviews. Once the candidates are received, all "fresh graduers" - the new employees who just graduated from college - take 8 to 10 weeks of classroom training.

Training and Development Wipro Limited

Wipro Limited has several training and development programs (training and development), such as Project Readiness Program (PRP), Fundamental Readiness Program (FRP), Corporate Readiness Program (CRP), Technical Readiness Program (TRP), and Real Life Lab (RLL).

Firstly, Project readiness program (PRP) is a 10 weeks training program that offered to all of those who were recruited from campuses. They are come from varied backgrounds (engineers and non-engineers) and going to be trained in a variety of behavioral skills and technical important that prepares them to work in a variety of projects. This training program was using e-learning where about 25% of the training duration was adopted in e-Learning mode. PRP prepare them for a project and contributing to each division / section requires. PRP is needed before they can enroll for the program Wase / WISTA. Secondly, Fundamental Readiness Program (FRP) covers four modules over a period of 10 days. Thirdly, Corporate Readiness Program (CRP) conducted for 6 days with the following material, such as Introduction of the company to make participants aware of their organization, behavioural skill training, and Spirit of Wipro. Fourthly, Technical Readiness Program (TRP) is performed during the 25 days that imparts 10 streams of different technologies with a set of assignments and case studies. Lastly, Real Life Lab (RLL) gives participants the opportunity to assimilate the TRP program understanding and implementing the real-life case studies before they are sent to various projects.

Wipro also has two other unique programs, namely Wase and WISTA. Wase (Wipro Academy of Software Excellence) was launched in 1995, offering BCA and M.Sc. students the opportunity to pursue higher education master's level, MS / M. Tech in the field of software engineering, in collaboration with the Birla Institute of Technology & Science (BITS), Pilani (Rajasthan, India). Wase aims to prepare the best graduates in science with a range of skills and knowledge to be able to work optimally in application programming. This program complements the fresh graduates with the necessary skills to work in a software company that is developing and promoting the importance of quality. While WISTA (Wipro Software Technology Academy) is a program launched by Wipro in 2011, in collaboration with the VIT University, Vellore. Program "Earn while you learn" is offering B.Sc & M.Sc students to achieve an MS / M.Tech in the field of information technology.
In these programs, students gain practical knowledge through projects that undertaken directly on weekdays. Thus, it will develop their technical skills in the IT world. WASE and WISTA provide soft skills training and provide project experiences.

Furthermore, students also earn a monthly salary which increasing every year in numbers.

Both of these programs consist of 48 months, divided into 8 semesters, four courses each semester, with 16 weeks face to face classes organized by the university. Classes are held on weekends, totaling four sessions, with duration of 2 hours each session. The monthly salary ranges between Rs 11,500 to Rs. 23,000, depending on the level of the middle of the living.

Based on information from the alumni of this program, this program has a good syllabus, and students also have experience of working in the IT field that would increase knowledge and expand the network. Students can then learn from managers, developers, and others who are experts in the IT field.

The downside of this program is that it implemented in a weekend class that causes students sometimes feel tired of having to work while in college. Later, they also have to complete a variety of exam required at Wipro outside the exam or test they receive in the WASE program.

Other matters concerning various training programs at Wipro were the findings of Shanmugam, et al., (2012) which found that employees feel that the training programs did not follow the development of IT technology in the world. Employees felt that the training program gave them less knowledge and skills they need to finish a project.

Educational Technology Implementation in Wipro Training and Development Programs

Educational Technology implementation in Wipro Training and Development Programs is likely to change in the future. This change will happen because Wipro is one of the world's major IT companies with the highest attrition rate in India which is 21.1% (Janani, 2014). The high attrition rate will impact on the company, which will specifically impact on the profit of the company. There are several factors that cause Wipro employee leaves the company, salary is one of them. The other thing is the training and development were deemed unsatisfactory for employees (Shanmugam, et al., 2012).

There is a tendency in training world for not just use a variety of advanced technologies for learning, such as the internet, mobile phones, social media, and others. The training world now starts to develop a learning model which is centered on the business (business-centric learning). Business-centric learning cause employees understand the business orientation of their company. They also will have the ability and skills adequate to accomplish various tasks. Business-centeric learning then will do not forget the content and delivery systems of good teaching materials. All begins with a focus on business, then develop content that is easily understood and delivered through a variety of methods, tools and media to support learning.

Wipro is a company that cares about their human resource development. Therefore we can be sure that Wipro will make the changes necessary to create a training and development program not only good syllabuses and teaching materials, but also the organization of the implementation in a way so that participants or employees have the ability and the necessary skills and motivation to continue learning and love their company which will make them to always strives to provide the best.

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The Relationship between Change and Quality of Learning Process

The change in learning paradigm in training and development program to be more business centered make employees more "close" to what they have learned. Learners, in this case the employees, who feel a relevance between what they learn and what they encountered in their work will make them more enthusiastic about learning. It is also expected to impact on their learning outcomes.

Business-centric learning idea were coming after Brandon Hall Group conducted a survey which showed that about 40% of businesses develop their learning strategies according to business needs, while the remaining 60% focused on the learner and content.

The learning model in this case is a learning model for training and development in which learning in line with business objectives. Although as many as 60% of businesses still using ways of training time, but the tendency to change is possible. The reason is as simple as the business needs should be the driving force for learning within the organization.

There is no point in focusing on learning content when it does not involve the business interests. The content then becomes less meaningful when employees do not have the time to learn something that has nothing to do with the business needs. The best strategy is to provide the right information to the employee (according to his needs), when and where employees need it, as long as it supports the business needs of the company.

Content then also be directed to learners (in this case the employee). In a sense that the content know what students already know and need to know. Adaptive learning can be integrated here. Adaptive learning dynamically adjusts the level or type of instruction based on the ability of individual learners and helps personalize learning to improve or accelerate the performance of learners. This is done by helping to solve various problems in a common learning, including student motivation, students' diverse backgrounds, and a lack of resources (Oxman and Wong, 2014). Adaptive learning has the potential to reduce the level of drop-out, to be more effectively to achieve the results (outcomes), to be more efficient for students, to help them achieve results faster, and teaching team is free to focus on providing direct assistance on the spot or at learners who need it most. Research has shown that the adaptive learning system is more efficient and more effective in achieving the outcomes of learners compared to traditional methods.

Development of training in accordance which involve the development of business and incorporating adaptive learning will stimulate students' interest. Students will feel more enthusiastic about learning when they know what the relevance of what they will learn is.

In addition, knowing the relevance of the subject is also one of the most important aspects of the learning process for adults. Relevance is the perception that there is something interesting and deserved to be known. Relevance has two aspects, namely interest and eligibility to note (worth knowing) (Roberson, 2013). Two ways to provide relevance for learners is utility value and relatedness. Utility value answering the question "What will I use this (lessons) for?". Utility stressed the importance of content for the achievement of the goals of students in the future - both short term and long term goals. While the relatedness will answer the question "What is the relationship between this (lessons) and me?". The relatedness includes the

student's feelings which is always close to the important people in their lives, for example his or her teachers.

Training and development are not only limited to employees with lower positions and tenure. Training and development is also necessary for top-level and middle-level management, supervisors, and heads of the project. The company needs to develop a sense of belonging and mutual help among employees so that they feel comfortable and close to each other.

Supporting and Inhibiting Factors for Change in Training and Development Program

Companies must adjust their instructional strategies to meet the demands of today's workplace. Traditional learning model is sorely lacking in bridging the gap between employers and employees as well as to improve the attachment (engagement) and performance. By aligning learning strategies with corporate goals and utilize innovative technology, organizations can improve their learning function significantly. Then it is also known that most professionals, both men and women want to have job training. One of the most preferred job trainings is on-job training. The duration of training is also important in delivering the benefits associated with employee training. Every organization should consider job training in their professional behavior since it leads to employee motivation (Hassan, et. al., 2013).

Wipro has a great concern to developing and improving the quality of its employees. Azim Premji, Chairman of Wipro, spend more time in the matter of human resources rather than finance. Premji participated in many training programs for managers. The company also spent a substantial amount of funds for training and development. Four percent of the total revenue used for employee training and development. Further, as a company in the field of Information and Communication Technology, Wipro is very aware of the ease with technology and the possibility to use it in training and development of employees. Those are supporting factors for the change in the program of training and development at Wipro.

However, developing a training curriculum following the re-produce teaching materials, create new learning media, rearranging teaching team is not easy. It needs a lot of work and people who are able to work together, and the cost also not cheap. Understanding the importance of evaluating the training and development program later became crucial to do. Evaluation of the impact of training on employee retention, for example, will provide information on training programs and what should be improved.

Some things to consider for improvement of training and development programs, among other things: choose the operator or provider or implementing appropriate programs team; collaborate with business and put the interests of the individual as a top priority. In the past, organizations have a limited choice of technology for training and development. Today there is a new solution that appears every month. Organizations should consider the operator or provider with innovative capabilities such as mobile learning and social media and also has to understand the importance of measuring the effectiveness of learning activities. Then the person in charge of training and development programs should work closely with business leaders to design learning programs and also to gather input from the right technology provider. It must be supported by top-level management. With such support, organizations can help change their approach to learning and create new learning

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programs. Later, the company also had to change the way they look and consider employees to focus on the individual and unique needs of each individual study. For some companies, this strategy could include aspects of adaptive learning; for other companies, it could mean different communication strategies.

REFERENCES

BSE India. (2015). *Top 100 Companies by Market*. Retrieved from: http://www.bseindia.com/markets/equity/EQReports/TopMarketCapitalization.aspx?expandable=3

Grebow, D. (2014). *The Future of L&D: Business-Centric Learning*. Retrieved from: http://www.trainingmag.com/future-ld-business-centric-learning

Hassan, Waleed, et al. (2013). The Effect of Training on Employee Retention. *Global Journal of Management and Business Research Administration and Management:* Vol. 13, Issue 6.

Larose, D. T. (2005). *Discovering knowledge in data: an introduction to data mining*. USA: John Wiley and Sons.

Oxman, S., & Wong, W. (2014). *White Paper: Adaptive Learning Systems*. Retrieved from: http://snapwiz.com/wp-content/uploads/2014/03/DVx_Adaptive_Learning_White_Paper.pdf

Priyatna, H. (2008). *Azim Premji: Bill Gates Muslim dari India*. Bandung: Mizania.

Roberson, R. (2013). *Helping Students Find Relevance*. Retrieved from: http://www.apa.org/ed/precollege/ptn/2013/09/students-relevance.aspx

Shanmugam, R., et al. (2012). An Empirical Study On Retention Of Employees In It Industries With Special Reference To Wipro Technologies. *International Journal of Management (IJM):* Vol. 3, Issue 2.

TEQIP. (2013). *Wipro Supporting Learning and Development*. Retrieved from: http://www.teqipgoodgovernance.in/pdf/4.%20Wipro%20Supporting%20Learning%20and%20Development.pdf

Wentworth, D. (2014). *5 Trends For The Future Of Learning And Development*. Retrieved from: http://www.trainingmag.com/5-trends-future-learning-and-development

Wipro. (2012). *About Wipro Limited*. Retrieved from: http://www.wipro.com/about-wipro/

Wipro. (2012). *Wipro Development and Training*. Retrieved from: http://careers.wipro.com/why_wipro/development_training.htm

Yan, X., & Su, X. G. (2009). *Linear regression analysis*. London: World Scientific Publishing Co. Pte. Ltd., Covent Garden

HEALTH EDUCATION AND APPLICATION PATTERN HEALTHY LIFE TO HEALTH OPTIMUM

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Abstract

Health education is needed to realize one's health efforts so that the favorable health behavior. Education is a deliberate attempt (planned, controlled, conscious and systematic manner) given to learners by educators to individuals who were potentially more developed directed towards a specific purpose. The education process takes place in an educational environment or places where education takes place, usually divided into three namely tri education center that is within the family (informal education), in schools (formal education), and in the community. The process of health education also follow the process, and its elements is the same.

INTRODUCTION

The health condition of a person or the health of society in general by 4 factors in the order of greatest influence up to a little that factors environmental conditions, health behaviors, health care and offspring. The opinion was expressed by H .L.Blum (Notoatmodjo, 2013). From the order can we look that healthy behavior plays an important role in influencing health conditions.

If we analyze, the environment as one of the factors that affect health can be controlled through behavior. The creation of a healthy environment, such as waste disposal, drinking water and latrines suggestion family (SAMIJAGA), sewerage (SPAL) are eligible health, and others will not be separated from the contribution of human behavior.

Similarly, the health service, will not be successful if there is no change in behavior, although established health care institutions such as posyandu, polindes and so on, if there is no participation of the communities using the health services, the health care program will fail. The lack of participation of the public is probably due to the lack of awareness, and the awareness and the absence of knowledge about the benefits of the use of health services for improving health of them.

The increasing prevalence of cancer, heart disease and stroke can not be separated with a diet that does not sehatserta physical activity and sports. The development of AIDS and other sexually transmitted diseases are also caused by unsafe sexual behavior. Plus more with the increasing number of victims of drugs among teenagers, can not be separated from adverse health behaviors.

Healthy behaviors a person will not be separated from the educational process. Education has been started since the person is in the mother's womb even be argued that a person's education has been started since a mother preparing her pregnancy. Education is a process of changing the attitudes and behavior of a person or group of people in a mature business man through teaching and training efforts (KBBI, 2003). A clear link can be seen that a person will be able to adopt healthy behaviors when prepared with good health education.

Healthy behaviors are behaviors that were related to efforts or activities of a person to maintain and improve their health, (Becker 1979). Healthy behaviors can be

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categorized with covert behavior *(covert behavior)* and behavior are not veiled *(Overt behavior).* Covert behavior in the form of knowledge and attitudes towards an object while covert behavior is behavior that is already an action or actions. Enterprises are most effective in changing the behavior of health-injurious behavior toward a favorable health behavior is through health education. Health education is needed to realize one's health efforts so that the favorable health behavior.

DISCUSSION

As already noted that one of the factors to get the behavior of health benefits is through health education. Education is a deliberate attempt (planned, controlled, conscious and systematic manner) given to learners by educators to individuals who were potentially more developed directed towards a specific purpose. Thus, in terms of such education should be further elements as follows: The existence of a form of education (whether in the form of business, help, assistance, guidance, service or coaching); their education actors (adults, educators, parents, religious leaders, community leaders, or heads of organizations); their educational goals (minors, students, learners); the nature of the implementation of education (consciously, deliberately, systematically, with or planned); their goals to be achieved (human decency, maturity, man patriot or citizen who is responsible).

The education process takes place in an educational environment or places where education takes place, usually divided into three namely tri education center that is within the family (informal education), in schools (formal education), and in the community. The process of health education also follow the process, and its elements is the same. Who act as health educators here are all health workers and anyone who seeks to influence individuals or communities to improve their health. Therefore individuals, groups or communities, in addition to be considered as a target (object) education, could also serve as subjects (actors) public health education if they be included in public health efforts. Which means students or educational goal is a society or individuals, whether sick or not sick yet, both children and adults. Thus, environmental health education also attend three educational centers, namely:

1. Health education in the family that is fully the responsibility of the parents, with emphasis on the cultivation of habits, norms and attitudes of healthy living.
2. Health education in schools is the responsibility of school teachers. It inl materialized in School Health Unit (UKS). The purpose of health education in schools, in addition to continue planting habits and norms of healthy living to students, also provide health knowledge.
3. Health education in the community, which can be done through various institutions and community organizations.

Health education is an application of the concept of education in the field of health. Health education can be defined as a business or activity to help individuals, groups or communities in improving the ability of (behavior) in order to achieve optimal health.

The results of health education is realized in the form of favorable health behavior. Either in the form of knowledge and understanding of health, followed by an awareness that a positive attitude towards health, which ultimately applied in actions that benefit health. ***Practitioners of Educational Technology should be able***

to facilitate education and memberkembangkan process of education, especially health.

Among the forms implementation of health education is by way of implementation of healthy lifestyles. Healthy lifestyle is followed by every individual to improve their health status. What is meant by a healthy lifestyle are all efforts to implement good practice in creating a healthy life and avoid bad habits that can harm health. Good habits in creating healthy living:

1. Maintaining personal hygiene and good health
   Healthy life starting from the "self". It can be said that the health we have is because of the "efforts" of our own. Therefore, the health of individuals or private health plays an important role. Personal health is the health of the body parts each of which include; skin, hair and nails health of the eyes, nose, mouth and teeth ears, hands and feet, put on clean clothes and perform motion and rest. Various kinds of diseases can be prevented by maintaining cleanliness. Therefore, maintaining personal health begins with maintaining the cleanliness of the parts of our bodies.
2. Eating healthy food (nutritional balanced menu)
   Eating is a vital necessity, not only for the supply of energy for our bodies, but also an essential requirement for the health and survival. Food provides the nutrients needed for a variety of processes in our body. No food contains all the nutrients are complete. Therefore, we need to consume a variety of foods to ensure the fulfillment of the adequacy of the nutrients we need.
   The adequacy of nutrition for energy substances, substances pembangu and regulators. Where the need for every person applying nutritionally balanced dish. The dish is a balanced nutritional foods that contain energy substances, builder substances, and regulatory substances consumed by a person in one day in a balanced way, in accordance with the needs of the body and usia.Makanlah appropriate age, when we are already entering old age (over 50 years) we need less food. Therefore, we need to reduce the fat, sugar and flour or carbohydrate. In addition to age-appropriate, eat appropriate, not excessive. People who do not work hard need less food than people who work hard. To obtain a healthy weight, keep in mind the balance of income and expenditure of energy. This means that when we eat continually exceed the needs of our body or not balanced with physical klta aktivttas do, there will be excess energy. All excess energy will be converted into fat, so we will be obese.
3. Maintain Health
   Environmentalrequires healthy situation, and a healthy environment. Therefore, the environmental conditions need to be properly addressed in order not to damage the health. Environmental health must be maintained in order to support the health of everyone living in the vicinity. Maintaining means keeping it clean. Dirty environment can be a source of disease.
   In keeping environment clean and healthy there are three factors that have to-first be considered, namely:
   a. The availability of clean water
   b. Garbage disposal and sewage
   c. Maintain the cleanliness and health of a bathroom, toilet or WC.

   In addition to these factors, air quality should also receive attention. Because the air quality in a room is a measure of safety for any person residing or working in

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the room. When a person has long been located or work in buildings where the air is polluted, he can experience what is called Sick Building Syndrome or Syndrome Disease Building. Complaints that arise are often headache , nausea , shortness of breath always weary in a sleepy , raised skin disorders and symptoms similar to influenza .

4. Periodic Health Examination
   In addition to the things we need to do in order to maintain the health of ourselves, there is one thing we need to do as well, ie regular health checks. With this health check, the possibility of health problems or disorders will be known early disease or earlier. So treatment would be easier than if the disease is severe. For those who are healthy, age under 40 years, a medical examination be conducted one year. But for those aged 40 or older, you should do it every six months. Even for people with risk factors for certain diseases kesehatnnya should be checked every month.
5. Avoid unhealthy habits that are detrimental to health
   Some unhealthy habits to avoid
   a. Smoking
      - Do not smoke, because of the smoke produced from smoking is very harmful to the health of the lungs, both for the smoker and those around him.
      - It is not true when quitting smoking can gain weight. Weight control can be done by setting food and regular physical exercise.
      - Not true smoking can help concentrate and purify the mind. It happened just the opposite, smoking can damage our nervous system works.

   b. Drinking alcohol and drugs (narcotics and addictive)
      - Do not drink alcohol and eat drugs, because it can lead to loss of consciousness, addiction and dependence.
      - Alcohol and drugs can damage the stomach, liver, heart and nervous system.
      - Get rid of the habit of taking the medication, except as directed by your doctor.
      - do not really use alcohol and drugs can resolve the problem and alleviate the disappointment of mental exercise and live a life according to religious teachings adopted is the best way to solve the problem.
      - If there is a problem, should be done in consultation with the experts (doctors, psychology, and religious leaders).

   c. Habits that allows transmission of the disease
      - do not establish direct contact or associate meetings with people who suffer from infectious diseases.
      - Do not wear personal equipment of others, such as towels, clothing, spoons, dishes, toothbrush, comb, let alone belong to people with infectious diseases
      - Maintain personal hygiene and success environment
      - Do not have sexual relations outside marriage or sexual behavior that is not healthy or behaving sexually deviant (homosexuals, sex), because it can be exposed to sexually transmitted diseases (STDs), including HIV-AIDS.

CONCLUSION

Prevention is better than cure is the watchword of the most appropriate in public health efforts in improving the health status at the same time. One effort in improving health is through health education and the adoption of healthy lifestyles,

Health education and the adoption of a healthy lifestyle that has been nurtured since early in every human being Indonesia will produce future generations of quality, both mental and physical, as the saying goes. " In a healthy body there is a healthy soul ". Let us facilitate health education, provide education to give the look and shape of good health.

REFERENCES

Glanz K, Rimer Barbara K, (2012) Health Behavior and Health Education: Theory, Research, and Practice.

HEALTH & SOCIAL CARE, (2016), the National Health and Social Care Teaching and Learning Resources.EALTH.

Magazine BINADIKNAKES, edition number 33 October 2013.

Notoatmodjo, S, (2013), Introduction to Health Education and Health Behavior Sciences, Andi Offset Yogyakarta.

World Health Organization (WHO), in 2013, the Educational Handbook for Health Personnel (WHO Offset Publication).

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THE PLAY STRATEGIES TO IMPROVE THE SHOOT SIDEWAYS STYLE (ORTHODOKS) LEARNING OUTCOMES (Action Research in SMPN I Sukabumi)

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Abstract

This research aimed to increase the Ortodox style of shot put learning outcomes on class VII students of SMPN I Sukabumi, and make the students more active on learning.

This research method is classroom action research with quantitative and qualitative data collection. The research were involving 2 collaborators and done as much as 3 cycles, then each as twice meet.

Based on learning process observatio obtained the result: learning process score on cycle I is 64,71%, increased to 88,24% on cycle II and have more increased to 100% on cycle III. Involvement of the student on cycle I is 53,85%, have increased to 76,92% on cycle II and have more increased to 92,31% on cycle III. The students learning outcomes have data on cycle I that students who get the KKM score is 75 as much as 20 persons (57,14%), on cycle II have increased to 26 persons (74,29%) and on cycle III have more increased to 31 persons (88,57%).

Keywords: Learning Outcomes, Play Strategies and Ortodox style of shot put

INTRODUCTION

Physical education in schools is divided into various type of sport, namely: big ball sport, small ball sport, gymnastics and athletics.

In this study, the researcher made an observation on the class of athletics, particularly the shot put class. The shot put class was chosen because the students, both male and female, apparently were not too enthusiastic to learn the sport. Such circumstances led to questions of how to increase the student's interest in learning shot put.

Given the problem, thus a development in learning and teaching method is required, so that the presentation of the material can be more interesting for the students to learn. A new way of learning will also make the teaching and learning process to be more effective as well as helping the teachers of physical education to present the subject more comfortably. An alternative to create a more interesting teaching method is by using interesting and different kinds of playing strategy to present the material to junior high students.

This study is focused on the playing strategy approach to teach the basic shot put technique, that is the Glide technique, to the students..

Problem Statement

The problem to be addressed in this study is whether the playing strategy approach will improve the learning outcomes of Glide technique at SMPN 1 Kota Sukabumi?

Research Usability

This research is expected to give the following benefits:

1. To help develope the creativity of teachers in the teaching of the Glide

technique.
2. To provide an alternative strategy to teach Glide technique to do shot put.
3. To help simplify and accelerate the mastery process of the Glide technique to do shot put, specifically for junior high students.
4. To provide an interesting learning methods for teaching Glide technique.

THEORETICAL STUDY

A. The concept of Action Research

Definition of Action Research

Definition, Action Research according to Uhar Suharsaputra (2012: 245) Action research is one of the variants of applied research and included in evaluation research type, which is intended to close or eliminate the gap between theory (espoused theory) with practice (theory in use).

Action research is often called by other terms such as Practitioner research, insider research, or self-study, all these basically show a practitioner-based research, whether taken individually or collectively.

According to Endang Mulyatiningsih (2011: 59), action research is included in the scope of applied research that combines knowledge, research and actions.

According to E. Millis, action research is a systematic question conducted by researchers, teachers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their schools operate (E.Millis, 2009: 5). Furthermore, Carr & Chemish in Suarsih Madya argued that Action research aims to develop the most efficient and effective learning strategies in a natural situation (not experimental) (Suwarsih Madya, 2011: 9).

Action research has specific characteristics that are not found in other studies. In accordance to the purpose of action research, that is to improve the performance of teachers/lecturers in teaching or performance of principals in managerial terms, the action research has the following characteristics:

1) The Theme is Situational

The research theme is drawn from the problems faced by teachers and students in daily learning activities or principals in managing their subordinates. Based on the problems found, then a diagnosis is conducted to find factors that cause the problems and alternative measures are designed to overcome the problems. While carrying out their daily routines, the researchers studied the behavior of a subject that will receive actions in order to get empirical data to construct the background for the research problems.

2) Actions is Taken Based on Evaluation and Self- Reflection

Self-evaluation based action research and actions to be taken are decided based on the researchers' self-reflection. The process of actions taking can be done by studying the root of the problems that cause failure in performance and the results of the analysis then revealed to take new actions. This activity takes place continuously, so it opens doors for teachers to modify the measures deemed necessary during the process of action research. These characteristics show that action research is flexible and able to be completed within a real situation (flexible and adaptive). The types of actions that have been selected can be models, approaches, strategies, methods, techniques or new media appropriate to address the problems being faced.

3) Need to be Done in Several Cycles

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Sets of actions are divided into several cycles. This shows an indication that a single action is not enough to address the problems, so that other actions need to be prepared for the next cycle. Action research activities will finish when the problems are solved, and not when an action is accomplished.

4) The Purpose of the Research is to Improve Performance

This study aims to empower, to establish, and to improve the skills and the quality of the skills. The success of action research can be seen from the changes that occur before, during and after the implementation of the actions. The research is declared successful if actions can help the previously-weak person to become more empowered person, there is an increase in the performance indicators, and others depending on the purpose of the actions. To determine whether there is a change, a multiple measurements must be conducted based on the object/problems being solved by taking the actions.

5) Implemented in a Collaborative or Partisipatory Way

The teachers/principals, researcher and students are working collaboratively in this research activities. Collaboratively means that each individual involved in this research has duties, responsibilities and different interests but toward the same goal, that is to improve the quality of learning/school management. In this case, teachers/principals have interests to improve teaching skills, the researcher aims to develop knowledge while the subject under study or students has interests to improve their performance/learning outcomes.

Collaborative action research is often conducted on the subjects that are taught by more than one teacher. In the course of research, one teacher acts as designer and implementer of actions while the other teachers act as the observers of the implementation of the actions.

B. The Concept Model of Physical Education Action Learning

Teaching and learning are the foundation of the whole process of formal education with the teacher as the main leading role. Although teaching and learning have different meaning and concept, both are interrelated between one another. The teaching and learning process is a process containing a course of conducts of the teachers and students on the basis of reciprocal relationships that take place in an educational situation in order to achieve certain goals. What is meant by educational situation here is a situation where teachers not only deliver lessons to the students, but they are also teaching about values and attitudes.

The learning process of physical education, is not really different from the learning process of other subjects. This is because the learning process, both in physical education or in any other subjects, contains a social relationship in which there are elements of the perpetrators (teachers and students); the presence of communication, time and distance, as well as the common object, the subject itself. Apart from that, in learning activities there is also an influential relationship, resulting in changes and improvements in the behavior of the participants. All of these activities will happen in the learning process, through various forms of relationships based on: 1) Imitation, 2) suggestions, 3) identification, and 4) Sympathetic. (Rusli Lutan, 1999: 34)

Physical education is an important part of the educational process. This means that physical education is not just decoration or ornament affixed to the school program to keep the students busy. Through physical education that is conducted

well, students will develop a range of skills that will be useful in their spare time, students will also be engaged in fun activities that will help them to develop healthy lifestyle and social connections. Fun activities will also contribute to the improvement of their mental and physical health. (J.S Husdarta, 2009: 17)

The learning concept of physical education in this study means an educational process which utilizing physical activities to produce a holistic change in the quality of the individual, in terms of physic, mental, and emotion.

Playing strategy

The use of playing strategy in the learning process of physical education relies on the theory of recreation or the release of excess energy, that is: Playing is an activity opposite to working, however, in a game the amount of work is equal to the amount of rest. The excess energy in a child that has not been used should be released through playing activities. Every person, at certain times, will have excess energy, which is if not released, it can encourage negative conducts. (J.S Husdarta, 2009: 17)

Playing consists of set of activities where children can do their activities freely. They are also free to express themselves and be creative, even though there is a competitive approach. All of these will encourage children's creativity so that the atmosphere will be fun.

The playing strategy approach is a process of delivering instruction in the form of a game without totally ignores the subject material.

The nature of playing:

1. Playing is an activity undertaken voluntarily on the basis of pleasure.
2. Playing with happy feelings will spontaneously foster activities.
3. Playing happily and having fun, will raise a notion in students that in order to be able to play well, they need to practice, do teamwork, have respect for their opponents, understand their teammate's ability, follow the rules, and know their own ability (Sukintaka, 2011: 7).

In playing strategy, students are free to conduct themselves, which will stimulate students to perform the requested movement related to the subject being taught. Playing for students aims to develop and foster common basic movement patterns and dominant in materials given, while at the same time nurture the courage of the students to participate in learning activities. In accordance with the descriptions in the book of Julia C. Biskop and Mavis Curtis which was translated by Agustina RE., that children can safely explore and experiment when they feel safe and confident in the playground. (Julia.C.Bikop and Marvis Cortis, 2005: 14)

The playing strategy in learning the glide technique for shot put in this study is a learning strategy in the form of a game by modifying the tool so that the learning process aimed to develop students' skills will become more attractive. The tools used in the game are the tools that are readily available in the environment and safe for students, such as used bicycle tires, cardboard, mattresses and rubber balls filled with sand.

Shot put

Shot put is a skill of throwing an object, namely a bullet, as far as possible. As the name implies, shot, and not throwing, the tool (bullet) is shot or pushed with one arm (M Yudha Saputra, 2001: 73). Studies in this research will discuss the glide technique, since glide technique is still often used, especially by beginners, including teenagers (junior high school students) or equivalent. (Tamsir Riyadi, 1985: 126). It

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is called glide or sideways style due to the tilted standing position at the beginning, so that the direction of the repulsion is on the side.

THE RESEARCH METHODOLOGY

A. The Research Objective

The purpose of this study is to determine the effect of playing strategy approach towards the outcomes of glide technique learning process. Playing strategy can help the learning process at present time so that it can be more effective and efficient, as well as add to the students enthusiasm in the learning process.

B. Methode of Research

This study uses a model of action research from Kemmis and Taggart in the form of cycles that consist of activities that includes the stages of design on each cycle: (1) Planning, (2) Action, (3) Observation, (4) Reflection, and the plan will be revised in the next repeated cycles if needed.

C. The Procedures of Action Research

According to the procedure of action research, action research is consisted of 7 stages, namely: the diagnosis of the problem, action planning, action implementation, observation, data analysis, evaluation and final reflections. Each stage of the research can be described as follows:

1) The Problem Diagnosis
   The problem was diagnosed at the early stage, when the researcher/teachers do daily work. Researcher took learning components that have not been optimized so that it can be improved. In this case, the researcher took one of the subject in physical education, that is shot put glide technique material in which the researcher see a problem during the learning process.
2) The Action Plan
   The actions were planned since the researcher discovered a problem and try to determine the solution through actions. After the researcher determine the appropriate actions to be carried out, researcher made an action plan and develop necessary tools needed in the process. In the action plan, the followings are constructed:
   a) Action scenario
   b) The Instrument for Research Data Collection
   c) Device Measures
   d) Simulation of Actions
   e) Implementation of Measures and Observations
   f) Data Analysis
   g) Evaluation and Reflection

D. The Success Criteria

The success criteria of the action plan are the conditions where the implementation of the action in the first cycle must be observed, evaluated and then reflected to design the action plan in the second cycle. In general, actions conducted in the second cycle are corrective actions from the actions in the first cycle, but that did not close the possibility that there are actions in the second cycle that repeats the action in the first cycle. The action is repeated in order to convince the observer that the action in the first cycle has or has not been successful. Success indicators of the

implementation of the action can be viewed from three aspects, the learning process by playing strategy approach is achieved, high levels of activity students in the learning process and also the learning outcome of the glide technique lesson.

E. Data Source

The data used in this research is the data that can describe the learning outcome. The quantitative data in this research is quantitative data from the learning process outcomes, which was obtained through the initial test and final test of the practice of glide technique. While qualitative data means the data that describes the process of learning which was gained through observation. The source of data in this action research was the students of class VII of SMPN 1 Sukabumi.

F. Data Collection Techniques

Data was collected in every cycle from the stage of planning, implementation, observation to reflection, which are necessary data components. Data on the lesson plan for glide technique was created by teacher, while the data of learning outcomes was obtained through the tests conducted at the beginning and the end of the cycle.

H. Data Analysis Techniques

For data analysis, this study uses data reflection analysis in each cycle based on the results of observations obtained from the field notes, documentation, and observation. The data were analyzed descriptively by comparing the results of the achievement with the success indicators.

RESULTS AND DISCUSSION

1. Description of Data in Cycle I

Planning Stage

The researcher at this stage prepares materials or teaching materials as well as the actions to be taken to comply with the problems found during pre-cycle observation.

Implementation Stage

At this stage, the researcher carry out actions in accordance with lesson plans that had been made. The researcher gave learning instructions in 2 lessons; lesson duration: 2 X 40 minutes.

The Observations Stage

Team of observers did some monitoring by observing researchers who were involved in the teaching and learning process. Each observer used observation worksheet containing 17 questions as a tool to measure the learning outcome of using playing strategy for teaching glide technique.

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Distribution of Learning Results of Shot Put with Glide Technique
Cycle I

No	Grade	F	%
1	68	2	5,72
2	71	6	17,14
3	74	7	20
4	78	10	28,57
5	81	6	17,14
6	83	3	8,57
7	88	1	2,86
Total		35	100

Based on the Table above, it can be concluded that as many as 15 students (42.86%) did not pass, their grade was below the minimum passing grade of 75. On the other hand, the number of students who passed the minimum passing grade reached 20 students (57.14%).

The Learning Outcome of the Lesson: Shot Put with Glide Technique
Cycle I

No	Grade	Passing Grade	F	%
1.	Pass	75	20	57,14
2.	Fail	75	15	42,86
	Total		35	100

The Reflection Stage

Based on the results obtained from the observation stage in the first cycle, it turned out that the results achieved were not yet satisfactory. There are only 20 students who got grades above 75 from the total of 35 students. This is because there were some students who still ignored the right position for holding the bullet, while doing repulsion and continue the movement at the same time. Thus, the researcher planned to take actions in the second cycle.

3. Data Description in Cycle II

The Planning Stage

Based on the results from the first cycle, there are students who were still cannot do the set of motions correctly. The most visible mistakes were the position when holding the bullet, while doing repulsion and continued movement. Therefore, further actions will be planned for the second cycle.

Implementation Stage

Actions planned for the second cycle was conducted in accordance with the plans made, that is by repeating the material that has not been mastered by the students.

The Observation Stage

As in the first cycle, the observers was observing the researcher who were carrying out the actions. Based on the observations and worksheet, observers also observed the activities of students during the learning session. The evaluation results obtained from students in the second cycle are as follow:

Distribution of Learning Results Shot Put with Glide Technique
Cycles II

No	Grade	F	%
1	68	1	2,86
2	71	2	5,71
3	74	6	17,14
4	78	13	37,14
5	81	7	20
6	83	4	11,43
7	86	2	5,71
Total		35	100

Based on the Table above, it can be concluded that as many as 9 students (25.71%) have not passed the minimum passing grade of 75. On the other hand, 26 students (74.29%) passed the minimum passing grade. The data is presented in the following table:

The Learning Outcome of the Lesson of Shot Put with Glide Technique on Cycle II

No	Grade	Passing Grade	F	%
1.	Pass	75	26	74,29
2.	Fail	75	9	25,71
	Total		35	100

The Reflection Stage

In the reflection stage, we have a discussion to verify our findings against the data obtained from observations. The result of our findings were that students who scored above 75 is 26 students. We also discussed the drawbacks in the learning activities in the second cycle that need to be corrected by the researcher in the next cycle (cycle III). Based on the reflection that has been conducted by the researcher, assisted by observers and other colleagues, it was determined that playing strategy must be used more often in the learning process.

3. Data Description in Cycle III

The Planning Stage

In the third cycle, the researcher first made a teaching preparation based on the reflection result from cycle II. The teaching preparation in this third cycle contained learning activities that use playing strategy to teach shot put with glide techniques. In this third cycle, the material is still the same as before.

The Implementation Stage

The third cycle was conducted in accordance with the plans made, based on the results of discussions between the researcher and observers. These actions are taken so that the learning outcome the lesson of shot put with glide technique would be better, that is to improve the Physical Education learning outcomes.

The Observation Stage

Observations were made to observe the extent to which improvements have been implemented in the learning activities in the third cycle. The evaluation results obtained from the students in cycle III are as follow:

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Distribution of Learning Results Shot Put with Glide Technique
Cycles III

No	Grade	F	%
1	71	1	2,86
2	74	3	8,57
3	78	10	28,57
4	81	12	34,29
5	83	6	17,14
6	86	2	5,71
7	88	1	2,86
Total		35	100

According to the table above, there are four students (11.43%) who still has grade below the passing grade of 75. Meanwhile, the number of students who passed is 31 students (88.57%).

Learning Results: Shot Put with Glide Technique
Cycle III

No	Grade	Passing Grade	F	%
1.	Pass	75	31	88,57
2.	Fail	75	4	11,43
	Total		35	100

The Reflection Stage

In the the third cycle, there are four students who had not reached the minimum passing grade. In order to meet the requirements, the four students were given an additional assignment and a chance to retake the test.

B. Data Analysis

In data analysis, the data from the learning process and the students learning outcomes were analyzed.

The Data of Learning Process and Learning Outcomes

Cycle	Learning Result	Learning Process	Student Activeness
I	57,14 %	64,71 %	53,85%
II	74,29 %	88,24 %	76,92%
III	88,57 %	100 %	92,31%

In bar chart below, the comparison between the learning outcomes of the lesson of shot put with glide technique in cycle 1, cycle 2, and cycle 3, is shown.

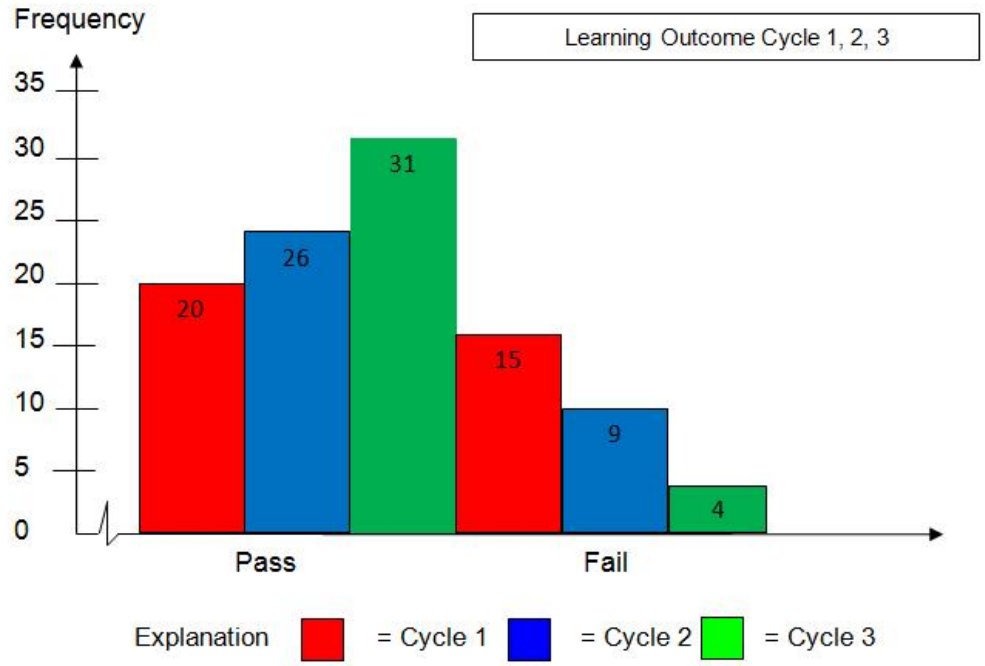

Figure 1: Comparison of the Learning Outcomes of shot-put with glide technique in cycle 1, cycle 2 and cycle 3

The chart above clearly shows that there is always an improvement in each cycle in the lesson of shot put with glide technique by using playing strategy, both in the use of learning strategies and in the outcomes.

DISCUSSION OF RESULTS

Based on the data analysis, we can see that there is an improvement in learning outcomes of the lesson of shot put with glide technique in each cycle.

At early observation, the learning outcomes was very low. This was because not many students were enthusiastic in following the lesson, which might eradicate the student's motivation to learn. However, the results of the evaluation of the first cycle showed a slight improvement. The evaluation results in the first cycle is 20 students have reached the passing grade or 57.14% of the total students

Thus the teachers planned to continue the actions on the second cycle. In the second cycle, teachers had made some revision needed for the learning process in order to improve the students' learning outcomes. On the implementation of the second cycle, the number of students who scored above the passing grade was increased to be 26 students (74.29%). However, the third cycle is still required.

For the third cycle, the teachers had made revisions that were considered necessary for the process of learning by using playing strategy. In the third cycle, the number of students who scored above the minimum passing grade was increased to be 31 students (88.57%). However, there were still four students who have not reached the minimum passing grade due to several factors, such as low levels of mastery of movement, injury due to accident, and unable to attend the lessons.

The most satisfactory results were obtained in the third cycle. The playing strategy used in the teaching shot put with glide tecnique really did improve the

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student's learning outcomes. Thus, the hypothesis is proved to be true, i.e. playing strategy can improve learning outcomes in Physical Education, specifically in learning shot-put with glide technique for the students of class VII SMPN I Sukabumi.

CONCLUSION AND RECOMMENDATION

Conclusion

In the first cycle, 57.14% (20 students) of the students passed the minimum passing grade. In the second cycle, 74.29% (26 students) passed the minimum passing grade, and in the third cycle, 88.57% (31 students) passed and 4 students failed. Thus it can be concluded that the learning process by implementing playinh strategies can improve the learning outcomes of the lesson shot put with glide technique of the seventh grade students of SMP Negeri 1 Sukabumi.

Recommendation

As for the recommendations that could be offered by the researcher are as follows:

1. For the physical education teachers, playing strategy approach can be used as an alternative to teach shot put with glide technique.
2. For the future research, the researcher hopes that this research can be conducted in a wider scope by using better playing strategy approach.

REFERENCES

Adang Suherman, *Dasar-Dasar Pendidikan Jasmani*, Jakarta: Depdikbud Dirjen Pendidikan Dasar dan Menengah, 2000.

Agus Mukholid, *Pendidikan Jasmani dan Olahraga*. Jakarta. PT. Yudistira 2007.

Endang Mulyatiningsih, *Metode Penelitian Terapan Bidang Pendidikan* Bandung: Alfabeta 2011.

E. Millis, *Geoffrey Action Research A Guide For The Teacher Researcher* USA: Merrill Prentice Hall.

Julia C. Biskop & Mavis Cortis, *Permainan Anak-anak Zaman Sekarang di Sekolah Dasar* Jakarta: PT. Gramedia Widiasarana Indonesia, 2005.

J. S Husdarta, *Manajemen Pendidikan Jasmani*. Bandung: Afabeta, 2009.

Samsudin, *Pembelajaran Pendidikan Jasmani Olahraga dan Kesehatan SLTP/MTs* Jakarta: Prenada Media Grup, 2008.

Suwarsih Madya, *Teori dan Praktik Penelitian Kelas(Action Research)* Bandung: Alfabeta, 2011.

Syaiful Sagala, *Konsep dan Makna Pembelajaran* Bandung: Alfabeta, 2009.

Uhar Suharsaputra, *Metode Penelitian, Kuantitatif, Kualitatif, dan Tindakan* Bandung: Refika Aditama 2012.

Widodo, Slamet *Pendidikan Jasmani, Olahraga, dan Kesehatan*. Jakarta: Piranti Darma Kalokatama 2007.

Yudha M. Saputra, *Dasar-dasar Ketrampilan Atletik*. Jakarta: Direktur Jendral Olahraga 2001.

Yoyo Bahagia, et al. *Atletik.*Jakarta: Departemen Pendidikan dan Kebudayaan, 2000.

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