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Feasibility Test For Android-Based Mobile Learning On High School Content

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Abstract — This study explores Android-based mobile learning media design on electrical content. The Media is designed to contain electrical content that is abstract and can not be seen with the naked eye. The content is depicted in a tangible and easily understood by students. The methods used in the development of the research media are Research and Development (R&D), and the development model conducted in this study is the IDI (Instructional Development Institute) Model of research results shows that the media Learning on electrical content is considered valid and the media is easy to use for students and teachers in the learning process.

Keywords: learning Media, Mobile Learning, Android, electricity

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INTRODUCTION

Technological developments provide easy information acquisition. Technological innovations provide widespread implications in life including the field of education. Educators can leverage IPTEK's progress to develop learning aids in the form of more interesting and dynamic learning media. According to Sudjana & Rivai in (Sutirman, 2013) with the media learning, the learning is more attention to foster the motivation of learning students, in the teaching methods become more varied so as to reduce boredom Learning, and for students to be more engaged in learning activities. In addition, learning media helps students prepare and receive contents that can be used independently in learning anywhere and at any time.

However, not all educational actors are able to utilize this technology well. The existence of smartphones among students and teachers is mostly only in accessing social media networks such as Facebook and Instagram and have not taken important roles in the field of education. One of the role of smatrphone in education is the use of mobile learning as a learning media.

From the research that has been done, students still have difficulty in understanding the high school electrical content. The results showed that the content was difficult to master by the learners (Planinic, 2006; Rusilowati, 2006; Samudra et al., 2014). This difficulty is also experienced by high school students in Lampung. This is because the characteristics of this content are invisible or abstract (Mursalin, 2013), teacher learning methods dominated by lectures and exercises (Nisa & Wasis, 2013), and lack of real experience or mental imagination (mental Imagination) Learners (Sadaghiani, 2011). Therefore, it takes an innovative effort in learning so that students can master the electrical concepts well and able to apply them. Therefore, it takes an innovative effort in learning so that students can master the electrical concepts well and able to apply them. One of them is using mobile learning as a learning support medium.

From the results of previous research conducted by Hanafi, (2012) states that mobile learning systems can be utilized as a cheap but powerful learning tool that complements the learning process of students. Assisted learning tablet computers have been done where the learning media displayed already displays a concept map and interesting animations (Chen, et al., 2016). Learners also find it helpful to organise what they want to learn. However, such success can be improved back by displaying an interactive or virtual reality simulation (Huang et al., 2010). Zaus (2018) in his research stating the Android-based static and dynamic learning Media is easy to use by teachers and students in the learning process.

Furthermore, Riyanda (2019) of his research entitled Development of Basic Programming Learning Module Based on Adobe Flash CS6 for Class XI RPL Students is as follows. (1) The product of this research is a product based on Adobe flash CS6 for XI grade students of software engineering. (2) The development of this module has gone through the expert level module validation, (3) The development of this module has gone through the teacher's practical response with a percentage of results of 81.40%, and the level of practice. of the student responses with a percentage of 85.81% then categorized practically. (4) The development of this module has gone through an effective stage, which shows a value of 86.36% of students reaching the minimum completeness criteria, then it can be categorized as effective.

Considering the usefulness of mobile learning learning media in helping teachers to deliver learning contents, researchers devised an Android-based mobile learning learning Media on Senior High Scool electrical content as one of the Resources in the learning process.

METHOD

The media development model uses the IDI (Instructional Development Institute) model. The IDI Model establishes the principles of a system approach that includes three phases: define, develop, and evaluate Grabowski (2003:3). The first stage is the Define phase which contains measures to identify problems, analyse the curriculum, analyse students, analyse concepts/learning contents. The second stage, the develop stage is drafting the initial form (prototype) product and product validation. The third stage is the Evaluate stage (assessment) which contains the test steps and the analysis of the trial results.

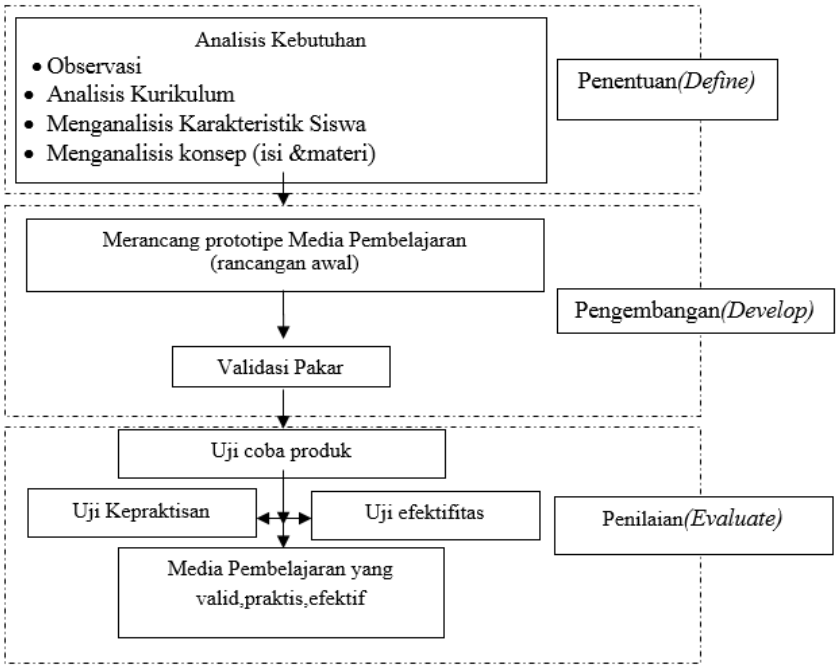

Figure 1. Learning Media Development procedure. Asyhar (2011)

A. Data Analysis

One of the main procedures used in data analysis is to collect all the necessary data that is data from the results of media validation and data from the results of media practicality. The media is determined by the results of the assessment by the experts

1. Validation analysis

The analytical techniques of media agility test used to analyze is a statistical test of Aiken's V. Data obtained through a poll, analyzed using descriptive statistics. According to Arsyad (2011), the steps to perform the analysis are as follows.

a. Provide an answer score with the following criteria:
   4 = very much agree, 3 = agree, 2 = less agree, 1 = Disagree
b. Sum the scores of each validator for the entire indicator
c. Statistics Aiken's V is formulated as

$$V = \sum s / [\, n (c - 1) \,]$$

Description:
s = r – Lo
Lo = Lowest validity rating Number (in this case = 1)
c = Highest validity rating number (in this case = 4)
r = The number given by an assessment.

d. The results of the Aiken calculations range from 0 to 1 and the number 0.6 can be interpreted to have a sufficiently high coefficient. The value V 0.6 and above are expressed in a valid category.

The validity criteria of a medium can be seen in table 1

Tabel 1. Kriteria validitas

No.	*Nilai*	*Kriteria*
1.	0,81 – 1,00	Sangat Valid
2.	0,61 – 0,80	Valid
3.	0,41 - 0,60	Cukup
4.	0,21 - 0,40	Kurang Valid
5.	0,00 - 0,20	Tidak Valid

2. Practicality analysis

A medium is used to measure how practical the learning media has been made. In Mobile learning, this measurement of practicality is done using the following formula.

$$Skor\ penilaian = \frac{Jumlah\ skor\ pada\ instrumen}{Jumlah\ nilai\ total\ skor\ tertinggi} \times 4$$

The practicality value obtained is categorized according to table 2. Following.

Table 2. The practicality value scale

Table 2. Practicality category

No	Achievement Rate (%)	Category
1	81 – 100	Very practical
2	61 – 80	Practical
3	41 – 60	Quite practical
4	21 – 40	Less practical
5	0 – 20	Not practical

Contains the research design & procedures, research subject (population and sample), data collection, instrument, and data analysis and other matters related to the way the research is conducted. Methods used should be accompanied by references, relevant modification should be explained.

Methods can be written in sub-sections, with sub-subheading. Subtitles do not need to be given a notation, but are written in lowercase letters beginning with a capital letter, Times New Roman-12 unbold, left flat. For example, you can see the following.

RESULTS AND DISCUSSION

This section presents all the data gathered from each stage of learning media development

1. Stage *Define*
   a. Curriculum analysis
      This curriculum analysis refers to the syllabus and RPP of Fisila's subjects. The subject matter developed in Android-based learning Media is the electrical content
   b. Student characteristics Analysis
      Based on the analysis of the students, taken into consideration in the development of media learning on the content of the Leaven is an Android-based learning media that is developed in accordance with the conditions and characteristics of students. With this use of Android-based learning media, students are easier to master the content presented because the content is presented interestingly and can be seen repeatedly.
2. Stage *Develop*

   This stage is done by determining the concept of learning media to be built. This sketch is done based on the level of the definition that has been done, then determine the media object that will be used in developing the learning media.

   After the creation of the media seal we do validity. Retrieval of learning media validity as a source of learning is by using questionnaires. In this case researchers give a poll to 4 validators that will validate the learning media developed, before conducting validation tests to the content and media experts as well as practical tests on teachers and students, the questionnaire instruments that Used in the validation test and practical test in the valid test by experts who understand the instrument poll

Table 3. Validator assessment of the Learning media design

No	Indicator	Aiken's V	Category
1	Navigation	0,87	Valid
2	Easy	0,81	Valid
3	Article	0,85	Valid
4	View	0,87	Valid
	total	0,83	Valid

Table . Validator Assessment of Learning media contents

No	Indicator	Aiken's V	Category
1	Learning	0,95	Valid
2	content	0,94	Valid
	total	0,94	Valid

3. *Evaluate Stage*)
   a. Practical Test Data

      Mobile Learning Media Practical test Data on electrical material taken from polls that have been shared with teachers and students.

Table 5. Practicality of learning media according to teacher response

No	aspect Rating	Percentage Assessment			Category
		P1	P2	Rata2	
1	Technical	92	100	93	very practical
2	Content	80	92	81	very practical
3	Design	80	93	81	very practical
	Average			**85**	very practical

Tabel 6. Practicality based on student response

No	aspect Rating	Category
1	Ease	very practical
2	motivation	very practical
3	Attractiveness	very practical
4	Useful	very practical
	Average	very practical

Data Collection and Instrument

ased on the results of research media development that has been done, it is obtained the following conclusions:

1. The mechanism of development of mobile media in Android-based electrical material as a supporting medium for self-learning through analysis of needs by students and teachers. Further through the stage of development, planning and evaluation..
2. Test the validation of mobile learning media on Android-based electrical material as a self-learning support medium, stating that the learning medium is valid.
3. The practical test of mobile media learning on Android-based electrical material as a self-learning support medium states that practical learning media..

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