Building Student Self-Directed Learning Through Virtual and Flipped Classroom

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Abstract—**Online lectures are often identified with the number of assignments given to students, resulting in an ineffective lecture process. The obstacle often complained about is online learning by teachers only by providing material on online/virtual tolls without paying attention to Self-Directed Learning. This article aims to understand students' Self-Directed Learning, especially with Virtual Learning and Flipped Classrooms. This article uses literary study methods related to Virtual and Flipped Classrooms to help students improve their ability to diagnose learning needs, formulate goals, identify learning materials and references, and implement strategies and evaluate learning outcomes.**

Keywords—Flipped Classroom, Learning Outcomes, Self-Directed Learning, Virtual

I. INTRODUCTION

The necessity to implement social distancing policies, work from home and study from home to stop the spread of COVID-19 has caused a paradigm shift, including education [1]. A very real impact in the world of education, namely the disruption of technology as a shift in the direction of learning [2], from the usual face-to-face learning, has drastically changed to online or online-based learning without face-to-face.

Learning with a student-centered learning model is considered very effective in increasing the effectiveness of learning [3][4][5]. This model provides a more comprehensive and meaningful space for students to seek experience and construct that experience into new knowledge. Students independently seek new things and also have complete control in developing their learning. The independence of students in the learning process or

self-directed learning will form more creative students [6][7][8]. With such a learning concept, it becomes a solution step during the pandemic that occurred in Indonesia. Learning self-directed learning provides a new color for learners in education, which is not limited by time or space.

Virtual learning or so-called online learning [9] can enhance independent learning [10][11]. This strategy can provide several benefits for both students [12][13] and teachers [14][15]. Online learning is cost-effective, flexible, and gives students a choice of experiments that multiple students can do independently and simultaneously [16]. Flipped Classroom is considered an effective strategy to reach the navy inside and outside the classroom [17]. The Flipped Classroom strategy can also help the teaching process by converting lecture notes, and excellent multimedia video homework posted online to watch and study freely before class [18]. Learning videos can be created by the teacher or collected from video sharing sites. Based on the problems discussed above, a research entitled "Virtual Classroom Learning Reconstruction and Flipped Classroom Learning To Increase Students' Independence.

II. LITERATURE REVIEW

A. Self-Directed Learning

Self-directed learning is an essential factor in learning. This method can be developed through planned educational interventions [19]. Self-directed learning is a personally directed mental process accompanied and supported by behavioral activities involved in identifying and seeking information [20].

Learners decide how, where, and when to study the content they place as important.

Self-directed learning is a process of individuals taking the initiative, with or without the help of others, in diagnosing learning needs, formulating learning goals, identifying human and material resources for learning, selecting and implementing appropriate learning strategies, and evaluating learning outcomes.[21]. Therefore, students are responsible for planning, implementing, and evaluating their learning and are expected to work independently or with others to achieve learning objectives [22].

The characteristics of the self-directed learning model are as follows [23][24]:

- Students independently have a hard effort and a sense of responsibility to make decisions related to learning,

- Students have the authority to involve thoughts, actions or manage learning activities independently,

- The meaning of independent learning does not always mean independent learning where learning takes place separately from others, but can also involve friends or other students,

- Require students to monitor themselves the learning process that will occur, whether there is progress or not in a lesson,

- Control of learning activities gradually shifts from educators to students,

- There is an important role in the motivation and willingness of students. Motivation will encourage students' decisions to participate, and the willingness to carry out tasks until learning objectives are achieved.

B. Virtual Flipped Classroom

Virtual Learning is an online learning environment in the form of a web-based portal or software [9]. This learning is no longer bound by space and time [25]. Meanwhile, the virtual class is an online learning environment. In this case, the atmosphere in question is virtual-based [26]

Flipped Classroom is also considered an effective strategy to reach them in and out of the classroom. The Flipped Classroom strategy can also help with the teaching process by turning lecture notes and homework into awesome multimedia videos posted online so students can watch and study them freely before class. Learning videos can be created by the teacher or collected from video-sharing sites such as YouTube.
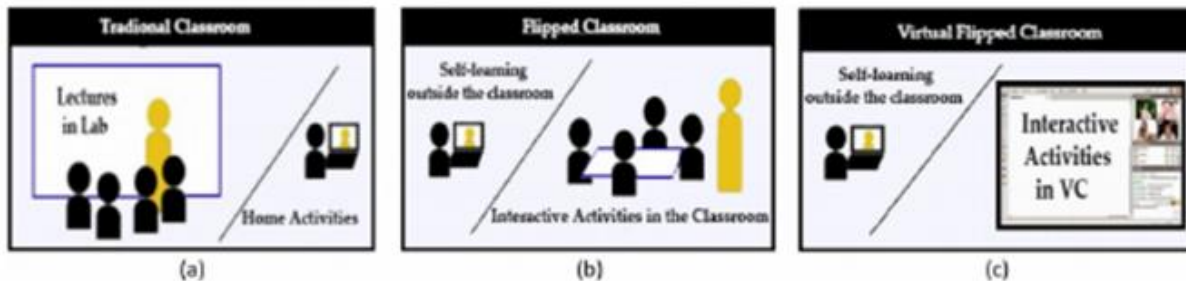

Fig 1. Flipped Classroom Virtual Model

Virtual Flipped Classroom is a combination of the Virtual method and Flipped Classroom Method [27]. Virtual Flipped Classroom allows students to watch and listen to lectures at home, carry out their interactive activities, and apply their knowledge in a virtual synchronized classroom [28] like a natural classroom environment.

C. Flipped Classroom Virtual Model to enhance Self-Directed Learning

Virtual Classroom Environment is one way that helps to learn at this time [29][30]. It is a learning environment that allows students and teachers to communicate without needing to be physically together at one time. To overcome all these challenges, namely by combining the Flipped Class strategy with the Virtual Class environment to produce a new learning model called the Virtual Flipped Classroom. The Virtual Flipped Classroom allows students to watch and listen to lectures at home, carry out their interactive activities, and apply their knowledge in a virtual synchronized classroom like a natural classroom environment [31].

In some cases, the teacher will guide a small group of students to create a multimedia video by recording certain scenes or screen recordings in computer activities. However, students and teachers will benefit from implementing the Flipped Class strategy [26]. Learners can watch lectures anywhere or anytime and use class time to do their homework. Teachers can support students to become independent learners, instead of telling them what to learn, how to learn, and when to learn, improve their critical thinking and independent study skills, gather

experiences, develop communication and collaboration skills, increase learning motivation, and thereby increase their performance.

III. RESEARCH METHOD

This article is reviewed using a literature review, with a systematic, specific discussion, which can identify, evaluate, synthesize, and fully record the knowledge found by researchers, scientists, and practitioners.

The literature used in writing this article was sourced from the Springer, Elsevier, PubMed, Google scholar, and SAGE databases using the keywords: "self-directed learning, virtual flipped classrooms". The articles used in this review are all research articles published in the four databases from 2003 to 2021.

IV. RESULT AND DISCUSSION

A. Overview of virtual flipped classrooms

The flipped classroom is a learning model in which students, before doing classroom learning, learn the material first at home according to the assignments given by the teacher [27]. Teachers also use this method when there are participants who are not present in class for some reason. Teachers can make videos of what they teach and give them to those, not in the class [31]. Virtual Flipped Classroom is a combination of the Virtual method and Flipped Classroom Method [27]. Virtual Flipped Classroom allows students to watch and listen to lectures at home, carry out their interactive activities, and apply their knowledge in a virtual synchronized classroom like a natural classroom environment [31].

This learning model is suitable and in line with the development of science and technology in Industrial Era 4.0 [32]. This change in the learning model certainly requires training and readiness of education staff and education officials in designing learning implementation plans and learning media that are compatible with current technological developments. To deepen the material being studied, educators can also invite students to discuss in small groups. Educators act as facilitators and supervise through virtual media to motivate and monitor student activity in discussions. With this model, students do not need to attend class.

B. Discussion

Based on the research conducted, the results are very encouraging, and the quality is better [27], [33]. Students who practice this method have very high learning motivation, increased creativity, increased responsibility, and more activity in-class learning [10]. Their academic scores are better than traditional learning methods. Likewise, educators also feel they have more time to interact with students.

With this model, to equip students with the ability to think critically (critical thinking), collaboration (collaborative), communication skills (communication skills), and creative and innovative thinking (creative/innovative) can be done correctly [26][27]. Educators do not dominate during learning. The interaction of educators with students is getting better and more fun.

Applying this virtual flipped classroom model can improve self-directed learning in student problem solving, a condition where students can carry out problem-solving processes without receiving help from others [30]. Students who have self-directed learning will understand the problem, plan, carry out problem-solving, and review the results of trial solving independently [28]. Assistance from educators will only be provided if students have difficulty and do not achieve problem-solving through virtual reverse classes

The five basic aspects of self-directed learning can be carried out well using this virtual flipped classroom method [34][35]. This is evidenced by:

- Students can control the number of learning experiences that occur. Students are active in expressing their ideas, making their own decisions, taking responsibility for themselves, and practicing themselves.

- Development of skills by emphasizing the development of skills and processes towards more productive activities, providing a framework that allows students to choose their interests and talents and equip them to succeed

- Change yourself to the best performance.

- Self-management, students face obstacles, learn to meet and find alternatives to solve a problem to maintain positive productivity. The combination of an internal source and expertise in performance is necessary for internal management.

- Motivating and self-assessment, when students are motivated to achieve high-interest goals, become the central element in self-directed learning. Assessment is essential in education, and self-assessment also encourages students to seek their best achievement.

V. CONCLUSION

A genuine impact in the world of education, namely the disruption of technology as a shift in learning, from the usual face-to-face learning, has drastically changed to online or online-based learning without face-to-face.

This model provides a more comprehensive and meaningful space for students to seek experience and construct that experience into new knowledge.

Students independently seek new things and also have complete control in developing their learning.

The virtual flipped classroom strategy can also help with the teaching process by turning lecture notes and homework into awesome multimedia videos posted online so students can watch and study freely before class.

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