Students’ Perception of Flipped Classroom using TPACK: A Preparation for Online and Multimedia Learning

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Abstract

The purpose of this research is to investigate student perceptions of flipped classroom which is combine with Information Communication and Technology (ICT). This is a preparation to design a learning model for Instructional Multimedia Course at Educational Technology Department, Baturaja University. The method of this research is quantitative descriptive using survey method and interview. The sample is all of the students at Educational Technology Department who will take Learning Multimedia course. The questionnaire was designed based on TPACK component. The result showed that TK (Technological Knowledge) got 95.175%, PK (Pedagogical Knowledge) got 80.6%, CK (Content Knowledge) got 100%, TPK (Technological Pedagogical Knowledge) got 91.9%, TCK (Technological Content Knowledge) got 83.9%, PCK (Paedagogical Content Knowledge) got 62.9%, TPACK (Technological Pedagogical Content Knowledge) got 93.5%. In general, students are interested in the flipped classroom model where the learning method is reversed, studying at home and meetings are used to do assignments. Furthermore, students expect the percentage of face-to-face meetings to be higher than online meetings, one of the reasons is that they been bored with online learning throughout the covid19 pandemic.

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INTRODUCTION

Learning using technology has become a must almost in all country in the world, since Covid pandemic, including teaching learning process at Baturaja University. Instructional Multimedia course is one the basic courses that support the provision of skills and abilities to design and produce computer-assisted teaching materials. This course becomes a prerequisites that can support the academic ability of learning designers. Problem found from the learning process that only about 30% of students get value A. This fact indicates dissatisfaction. Because it is expected that from the implementation of this course at least 50% will get an A. Based on the results of a survey to participants students, one of the problem they complain about is the limited time in reviewing learning understanding, students want to get more time for questions and answers, discussion, and demonstrate what they understand related to the material. The problem of learning outcomes will be serious case related to the importance of this course to shape the competence of prospective teachers. Especially in learning during this covid period because the learning process is not properly monitored by the lecturer.

Flipped classroom is a learning model where the teacher provides the material before the learning process, students learn the material outside the classroom and when in class it is used to do exercises, simulations or discuss with each other (Utami, 2017). The main advantage of this learning model is that students learn independently outside the classroom so that more time is used to discuss about students’ understanding in class. Actually, flipped classroom has been used as an instruction method for well over a decade, there have been educators at the late 1990s who have flipped their classes (Baker, 2000). However, the amount of literature and studies discussing flipped classroom was limited at that time. This lack of information available can be caused by only a few educators have access to the technology that is needed to create video content (Johnson, 2007). Nowadays, flipped classroom is currently being presented as a new teaching innovation, where on its application many elements of technology are used. Stelee (2016) showed his result that the use of multimedia elements and technology to help time-shift direct instruction so students receive the most support when they are working on the tasks requiring additional cognitive load. However, several studies also showed that the flipped classroom is effective in improving learning outcomes. (Dusenbury & Olson, 2019; Kardipah, 2018; Sutama, Damayanti, & Novis, 2016).

Multimedia according to art or educational system is the use of multiple media used for expression or communication and the existence of a dynamic user-state or content altering capability (Schwier, 1993). While Arsyad (2009) gave his opinion that multimedia is defined by more than one media, it can be a combination of text, graphics, animation, sound and video. In line with this, Vaughan (2008) stated that multimedia is a woven combination of digitally manipulated text, photographs, graphic art, sound, animation, and video elements. One of the advantages of multimedia is it allows the users to control the media.

Research conducted in Yogyakarta States University showed the students got higher achievement scores compares with students with non-multimedia learning (Surjono, 2017). A research showed that learning using multimedia can increase the students engagement (Susila, Muslim, & Syahrial, 2019). The results above becomes reasons for the researcher to include multimedia in developing the product media for learning. Besides multimedia, online learning is still an inseparable part in this covid season. Online learning refers to an internet-based learning environment that can connect students of diverse backgrounds who boast different perspectives. One of benefit of online learning is the ability for every student to participate in online learning (Maddix, 2012).

In this research, researcher try to combine multimedia and online learning a part of practicing flipped classroom model. The breakthrough learning model that integrates the flipped classroom by
utilizing multimedia technology and online learning is expected to support students to learn independently according to their cognitive abilities. This learning model is expected to be able to be a solution to overcome the problems of unfinished learning outcomes. Aljaraideh (2019) recommended the necessity of using flipped learning technique, he applied it at universities in Jordan due to its efficiency in developing students' understanding of the curriculum and in motivating them to become active rather than passive participants in the classroom. (Kardipah & Wibawa, 2016) also stated that the flipped classroom was proven to improve learning outcomes in computer skills courses at high school. The studies have inspired researchers to develop this learning model, especially since the flipped classroom has never been applied, especially in the Educational Technology Department. The different from the development of this model is the use of multimedia and online learning in the application of the flipped classroom. Before develop the model, researcher try to gain information of the students' perception about online flipped classroom model so that it can be produced learning products that are validated and can be used to improve the quality of learning.

METHODS

The method of this research is quantitative descriptive using survey and interview. The sample is all of the students at educational technology department who will take Instructional Multimedia course. The questionnaire distributed randomly to the students to investigate information about the students' perception of online learning during covid 19. The questionnaire distributed also to all of the lectures and all of the official and staff of educational technology at Baturaja University to prepare the new appropriate strategy in learning especially facing the pandemic era. Data would be analysed quantitatively using percentages. The survey was designed through some indicators in TPACK.

RESULTS & DISCUSSION

Results

Questionnaire was made referred to TPACK (Technological Pedagogical Content Knowledge). TPACK and its components are important because this learning model included technology on its instructional process. Learning model in this course is Flipped Classroom which is using technology (multimedia and on line learning) to facilitate learning. Musallam (2010) found on his research considering his flipped model that also employs a technology-rich learning environment and collaborative learning activities. The use of technology on instructional process become a reason for researcher to include TPACK model in need analysis and development phase. Koehler, Mishra, & Cain (2013) gave their opinion that the development of TPACK by teachers is critical to effective teaching with technology. According to The TPACK framework, specific technological tools (hardware, software, applications, associated information literacy practices, etc.) are best used to instruct and guide students toward a better, more robust understanding of the subject matter.

There are seven components that will be used as references to explore information about students' perceptions of the flipped classroom learning model using online learning and multimedia. They are TK (Technological Knowledge), PK (Pedagogical Knowledge), CK (Content Knowledge), TPK (Technological Pedagogical Knowledge), TCK (Technological Content Knowledge), PCK (Paedagogical Content Knowledge), TPACK (Technological Pedagogical Content Knowledge). The are three types of knowledge, they are TK, PK, and CK. which are thus combined and recombined in various ways within the TPACK framework. Technological pedagogical knowledge (TPK) describes relationships and interactions between technological tools
and specific pedagogical practices, while pedagogical content knowledge (PCK) describes the same between pedagogical practices and specific learning objectives. Finally, technological content knowledge (TCK) describes relationships and intersections among technologies and learning objectives. These triangulated areas then constitute TPACK, which considers the relationships among all three areas and acknowledges that educators are acting within this complex space.

Figure 1. The Connection of Component in TPACK (Technological Pedagogical Content Knowledge). Koehler, M., & Mishra, P. (2013).

The questionnaire of students’ perception for flipped classroom is formulated with TPACK and then distributed to students who will take the course. The questionnaire got the following results:

Figure 2. The Result of Survey about students’ perception of Online Flipped Classroom using TPACK

The result showed that TK (Technological Knowledge) got 95,175%, PK (Pedagogical Knowledge) got 80,6%, CK (Content Knowledge) got 100%, TPK (Technological Pedagogical Knowledge) got 91,9%, TCK (Technological Content Knowledge) got 83,9%, PCK (Pedagogical Content Knowledge) got 62,9%, TPACK (Technological Pedagogical Content Knowledge) got 93,5%. The average score for all indicators got 86,5%.
Discussion

There are seven indicators that are used to collect information about students’ perceptions of online flipped classroom. The average score for all indicators got 86.5 %. This score indicates that generally students are interested in online flipped classroom. The highest score goes to the Content Knowledge (CK). CK is what are you teaching and what is your own knowledge of the subject. For this lesson, you need a solid understanding about the course material. From the interview found that all of students are excited to learn about Instructional Multimedia course and assume that the lecturer who will teach the course is appropriate and very well versed in the material. This is proven by several works that have been produced by lecturer in the fields of technology and multimedia. The skills and abilities of lecturers in mastering and delivering the material will generate student motivation in learning (Maryance, 2017).

Pedagogical Knowledge (PK) component tried to find about will the instructional strategy that is offered meet students needs. To know about this, need to investigate about what students style of learning and to know the previous best practice in learning according students view. We found that students interested in regarding the training possibilities of the flipped classroom, since it favors the development of competencies as well as autonomous learning and group work. For practice course, they like if the lecturer prepares the material specifically. They agree about flipped model, where students learn the material outside and in classroom meeting they do some assignment guided by lecturer, but from the interview we found that they prefer to have face to face meeting than online meeting. Then, it concludes that students are keen on using technologies aid only to prepare the material, while discussion and practicing the assignment they still want conventionally learning by face to face meeting in the classroom.

Pedagogical Content Knowledge (PCK) got the lowest score. PCK describes the same between pedagogical practices and specific learning objectives. The lowest score goes to pedagogical practice especially at the point of the suitability of the selection of online learning models in courses. This is related to questions about students' opinions of online learning practice. In interview season, students gave their reasons about this disagreement, this was related to their feeling of boredom after studying online for a long time during the covid pandemic. In line with this Argaheni (2020) states that one of the impacts of online learning during the COVID-19 pandemic is that students got stress and are less creative.

CONCLUSION

This is a preparation for flipped classroom model which is combined using multimedia and online learning for instructional multimedia course. In a context conditioned by COVID-19, this learning model will facilitate a learning modality where virtual synchronous sessions are used to solve doubts and work in class. On the other hand, the time outside the classroom is oriented towards the acquisition of learning about the contents through a variety of resources that lecturer has made available to students through the website platform that is equipped with multimedia. Flipped classroom model where the learning method is reversed, they learn the course material at home and classroom meetings are focused to do assignments, gave them more free style of learning and change to prepare more. We see the implementation of the flipped classroom has the potential to promote learning.

Survey result and interview showed that students are interested in taking this course and learning model offered, they like it if the lecturer prepares material and students are given the opportunity to study it first before meeting face to face, but students expect the percentage of face-to-
face meetings in the classroom to be higher than online meetings, one of the reasons is that they been feeling bored with online learning throughout the pandemic.

CONFLICT OF INTEREST

Concerning the research, authorship, and publication of this paper, the authors reported there is no potential conflicts of interest.

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