"PROJECT-BASED LEARNING VIDEO CONFERENCE ON MULTIMEDIA ENGINEERING TECHNOLOGY AT UNIVERSITY"

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ABSTRACT:
This study aims to determine the ability of student presentations in Final Project Making through making video conferences using the Project-Based Learning learning method. The method used is Classroom action research (CAR) for Telkom University students who take Project Multimedia 3 Engineering Technology Study Program as many as 160 people (4 classes). The study was conducted in two cycles by going through the stages of planning, implementation, observation, and reflection on a circular basis. The first cycle starts from the second meeting until midterm and the second cycle after midterm until midterm. Success standards are determined with a value> 2.5 in mastering presentation skills, knowledge-based, and critical thinking. The results showed that students could achieve mastery learning beyond 2.5. There is an increase in assessment from cycle one to cycle two by reflecting on improving the task orders and reaffirming the assessment indicators. It can be concluded that PjBL has succeeded in increasing the ability of students in video conference presentations.

Keywords:
Project-Based Learning, Video Conference Presentations, Multimedia Engineering.
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INTRODUCTION

Telkom University is a tertiary institution that realizes that class improvement is one of the keys to the success of education quality. Classroom action research does not only belong to the teacher but to all practitioners, including lecturers who want to improve and improve the quality of their practice. Classes must be well managed; for this reason, competent lecturers are needed not only in the substance of the material but also in the way they are delivered with the right method. It was alleged that Telkom University lecturers still had weaknesses in the way of delivering the material. Call it they are professionals in the discipline of science but has a shortage in the use of techniques/learning methods used in class.

Professional lecturer competencies are needed to improve and enhance the teaching and learning process in the classroom. Classes always face changes, and lecturers must become catalysts and facilitators who can create an active, creative, and fun learning atmosphere. The learning system in universities asks their lecturers to activate their students, so they are more creative and innovative. The government has determined tertiary institutions to implement student center learning (SCL) as a method of learning in tertiary institutions. In practice, the lecturers still find it challenging to be creative with the learning methods/techniques given to them.

The results of a preliminary survey of almost all Telkom University lecturers that they had improvised in the way of teaching in the classroom, but still did not know much about various methods and how to practice them. They

are not sure with the method that has been conveyed whether the students can be accepted, the material can be mastered as a whole, the tasks can be captured clearly, and the evaluation is given according to the level of competence (Maseleno et al., 2019). This is in line with research conducted by Ignacio de LosRíosa, Adolfo Cazorlaa, José M. Díaz-Puentea, José L. Yagüe (2010) that "instructors at tertiary institutions are insufficient preparation for research and creation; excessively theoretical instruction with a reduced practical component; knowledge that is too general with deficient specialization and updated knowledge; and little preparation in directing human teams. "

Realizing the importance of professional competence of lecturers as educators and for the benefit of campus outcomes, namely having students who can complete studies on time with good quality. Telkom University has given grants to lecturers to conduct classroom action research intended to create a culture of teaching and learning better, increase the responsibilities and professionalism of lecturers, improve and enhance the teaching and learning process, and can produce competent students by graduating on time. This Telkom idea has been captured by lecturers, and they conduct classroom action research workshops to identify crucial problems related to their learning and find solutions to their problems. This workshop has identified several problems in the class, starting from the students, the lecturers, the facilities, the atmosphere, the lecturer interaction with the students, and the evaluation system.

Of the various problems identified, courses using project methods are the focus of lecturers' attention. This relates to independent learning and student motivation to learn, which is highly demanded in this method. While the skills from the results of this method are expected to be the capital of student final exam performance.

LITERATURE REVIEW

Project-Based Learning (PjBL) and Student Performance

That learning is experience. Students must experience it real. The concept of learning by doing was conceived by Jhon Dewey (2002), inspiring lecturers to provide learning to students while doing. Learning while doing this is a precious experience for students because they immediately try, practice their skills to organize an assignment given by their lecturers. PjBL has successfully created student learning with mastery in task completion skills, problem-solving skills, and collaborative skills (Craig, TT, & Marshall, J., 2019). PjBL is a form of constructivist and collaborative learning, where the learning process used is student-centered, which allows them to work together to solve problems and build their knowledge (Whatley, 2012). Sumarni, (2015) explained that the PjBL method is systematic learning in involving student learning through research assignments, authentic questions, and well-designed products. Thus, authentic tasks and work can construct solid and meaningful knowledge and skills (Cord, 2001; Waras, 2007).

PjBL learning orientation is there a product that is produced from projects that are jointly designed, implemented together, and displayed together. PjBL is learning by producing a product as defined by Bell (2010), that PjBL increases students' creativity and psychomotor skills through learning activities that direct students to be able to produce a product (Bell, 2010). Akinoglu (2008), Doppelt (2003), and Yalcin et al (2009) state that PjBL is effective in improving student performance through the creation and testing of a product. Goodman and Stivers (2010) asserted that PjBL is a teaching approach that is built on learning activities and real tasks that provide challenges for students related to daily life to be solved in groups. PjBL is an inductive teaching method in which students work in groups to develop a plan and solve open-ended, authentic problems.

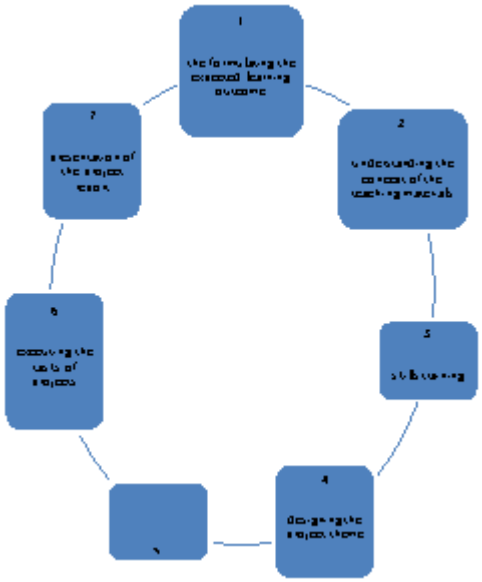
The project given by the lecturer to students is in the form of the task of creating a product. The project assignments must be clearly stated that visualize abstract concepts into reality so that they are easily understood by students (Pekbay&Kaptan, 2014). Project-based learning is a model that can organize projects in learning (Gulbahar&Tinmaz, 2006). The project given by the lecturer indicates that PjBL is a learning method that involves and empowers students fully so that the characteristics of SCL are clearly illustrated in this method.

PjBL gives students the meaning of learning because this learning model is student-centered (Afriana, 2016). This student-centered learning model works in-depth in the investigation of a topic (Grant, 2002). Investigation of a topic is related to answering challenging questions or problems, which involve students in the design, problem-solving, decision making, or investigative activities. PjBL is an assignment method that provides opportunities for students to work relatively independently for long periods of time and lead to realistic products or presentations (Thomas, Mergendoller, &Michaelson, 1999). The NYC Department of Education (2009: 8) explains that in the PjBL model, students must build their own content knowledge and demonstrate new understanding through various forms of representation. Thus, project work is a form of work that contains complex tasks based on questions and problems that are very challenging and guide students to design, solve problems, make decisions, conduct investigative activities, and provide students the opportunity to work independently. The project-based learning approach (PjBL) creates a "constructivist" learning environment where students build their own knowledge, and educators become facilitators (Goodman and Stivers, 2010).

Thus, learning can be said to use the PjBL method if it has student-centered characteristics, collaborates in making decisions and solving problems, works carrying out tasks authentically and building content,and demonstrating new understanding through various forms of representation. Buck Institute for Education (1999) mentions several things related to PBL characteristics, including: (a) students as decision-makers, and making frameworks, (b) there are problems whose solutions are not predetermined, (c) students as process designers for achieving results, and (d) students are responsible for obtaining and managing the information collected. Whereas Stripling et al. (2009), the Project-Based Learning model has the following characteristics: 1) Directing students to investigate essential ideas and questions, 2) Is an inquiry process, 3) Related to student needs and interests, 4) Student-centered with making products and making presentations independently, 5) Using creative, critical thinking skills, and finding information to conduct investigations, draw conclusions, and produce products, and 6) Related to authentic, real-world problems and issues.

The application of PjBL has resulted in a finding that this PjBL has successfully improved students' skills, attitudes, knowledge, competencies, motivations, and performance such as research conducted by W. Sumarni, S. Wardani, Sudarmin, DN Gupitasari (2016), J. Afriana, A Permanasari, A Fitriani (2016), Craig, TT, & Marshall, J., (2019) who found a strong relationship between the use of PjBL learning methods with increased skills, motivation and interest in learning. PjBL is carried out with the following systematic steps: start with the big question, design a plan for the project, create a schedule, monitor the students and the progress of the project, assess the outcome, evaluate the experience (The George Lucas Educational Foundation, 2003). Complete with NizwardiJalinus, RahmatAzisNabawi, AznilMardin (2017) as follows: 1) the formulating the expected learning outcome, 2) understanding the concept of the teaching materials, 3) skills training, 4) designing the project theme, 5) making the project proposal, 6) executing the tasks of projects and 7) presentation of the project report

These steps are visualized in figure 1. Together with the student, the lecturer conducts building learning commitment and also agrees on the steps of learning with the project method. Steps to learn the project method



Pigure1. PjBL steps

Source: Adapted from Jalinus, N., Nabawi, RA, Mardin, A. (2017)

PjBL and Student

Performance Performance is defined as a function of motivation and ability (Hersey and Blanchard, 1993) and is complemented by Robbins (2001) by defining performance as an interaction function of three things, namely *Ability*, *Motivation*, and *Opportunity*. Thus performance is a function of motivation and ability that is enhanced by opportunities. The performanceconsists of ability and motivation.Project-based learning (PjBL) is an appropriate method to be implemented in competency-based learning (Ignacio de los, et al., 2010; Chinnowsky et al., 2006; Padmanadhan&Katti, 2002). By using the PjBL method, student competency can be effectively achieved (Ignacio de los, et al., 2010; Kelly, 2007). In addition, Lasonen&Vesterinen (2000) found that 78% of students stated that project-based learning was useful in preparing to enter the world of work, practice in the field.

Students participating in PjBL show increased motivation to learn content (Mills &Treagust, 2003). This is very useful for comprehending comprehensive and in-depth content to be used as a product requested by lecturers as project objectives. PjBL is a method that is independent. Independent learning is unlikely to be successful if it is not accompanied by strong motivation. With PjBL, students have autonomy over their learning by giving choices regarding the solution process, questions, or challenges exploring the work process. PjBL is a choice that promotes intrinsic motivation, produces greater persistence, and allows students to pursue challenges in ways that are appropriate for them (Craig, TT, & Marshall, J., 2019; Bell, 2010). This is an opportunity given by lecturers to show their competence and motivation functions.

METHOD

The output from the Multimedia 3 course is to make the final project and its prototype. The purpose of this course is to apply the courses that students have taken at levels 1 to 3 and summarize them in a multidisciplinary project in the form of doing the final project. This Final Project will be tried privately and determine the graduation of students from the Multimedia Engineering Technology S1 study program. Thus, the position of the success of this project is crucial for students, lecturers, and study programs. One aspect of determining a student's graduation is his presentation skills during the final project trial. An excellent presentation will show the student masters most of the material and satisfies the examiners and tutors. Thus, the opportunity for students to graduate will be wide open. Conversely, if the student is academically good but is not good at delivering presentations, the examiner can think differently and give grades that are not very satisfying.

CAR is carried out two cycles with each cycle stage using the Kemmis&Mc Taggart spiral model, namely: (1) planning, (2) actions, (3)

observation, and (4) reflection in 4 classes of Multimedia courses 3.

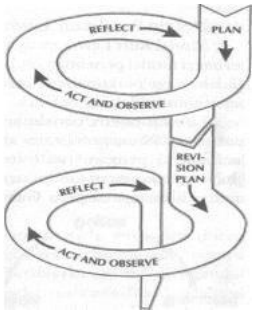


Figure 1. Model of Classroom Action Research by Kemmis&Mc Taggart (2010)

Criteria for mastery learning are determined by lecturers through Rubik assessment with a standard of 2.5 (grading scale 4). The focus of observation of this project is the video streaming of the final project topic.

RESULTS

Planning

Three things to do in CAR planning activities are: 1) Adjusting the semester development plan with the PjBL method, with the results shown in table 1; 2) Determine aspects of observation that will be used as an assessment of the PjBL process. The assessment rubric is directed at aspects of Presentation Skills, Knowledge-Based, and Critical Thinking, with the results shown in table 2.

WeekWeek to	Expected Capabilities
1	Understanding the Webex Cisco Function Can be the host of making QR Code, making Short URL
2	1) Can create a google form that is equipped with an add ons limiter feature 2) Design a flier used to invite participants
3	1) Record a video conference then upload it on Youtube 2) Upload PowerPoint and presence files as a condition for completing assignments
4,5,6	1) Perform online presentations 2) Act as a moderator of presentations 3) Acting as a host
7	Reflections and Mid Semester Assessment
8.	1) Understanding the systematic PowerPoint of the final project 2) Creating a PowerPoint that emphasizes the final project systematic
10	3) Understanding systematic infographics The 4) use of assets is ready to use from the internet 5) Understanding the functions of assets in presentation mockups 6) Making UI with Adobe XD
11	7) Making concepts final project-specificpage final project 8) Uploading web page to the class web
12	9) Make final project poster 10) Verifying poster content with the purpose of making posters
13-15	11) Conducting online presentations 12) Serving as moderator of the presentation 13) Serving as host
16	Reflection and Final Evaluation Semester)

Table 1
Adjustment of thePjBL Method Development Plan

Action in this research is giving tasks with the PjBL method, which in its implementation consists of 3 parts, namely: Introduction, Core Activities, and Closing. Preliminary activities consist of students praying, tapping, conveying learning objectives, and conveying the material's relationship today with daily or previous meetings. The main activity is that students are given the task to plan video streaming using the WebEx tool. This project is done in groups, and each member is required to act as a presenter, while the other group members serve as hosts, moderators, youtubeuploaders, and attendance. This role is carried out alternately until all members get the role of all presenters. The implementation is divided into two, namely socialization and action. For socialization, students are asked to make a digital flyer and distribute it to social media, one of which is an Instagram study program (@ s1trm.fit). For action events are divided into the opening (5 '), delivery of material (30') question and answer (20 '), and presence (5'). In the end, the host closes the event as a sign the video streaming has finished. The recording officer then uploads to the recorded YouTube video to be used as evidence of the execution of the task.

OBSERVATION:

In planning, there are three observations, namely Presentation Skill, Knowledge Base, and Critical Thinking, as shown in table 2.

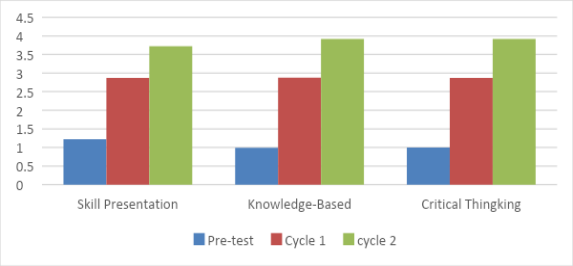
Aspects Observed	IndicatorAssessment Indicators
Presentation Skill	1. The main ideas are submitted in a logical order
	2. Duration of time used properly
	3. The handout is available and useful for the audience
	4. Presenter responsive to participant's questions
Knowledge-Based	1. Providing sufficient background information
	2. material delivered in accordance with the topic
	3. the essential information delivered so participants can evaluate material
	4. Presenterhave a good understanding of the topic
Critical Thinking	1. The presenter explains the problem clearly
	2. The presenter explains the underlying theory and evidences Appropriate
	3. presenters provide suggestions for the continuation of the final project work

Table 2 Presentation Capability Rubric

The results of the post-test assessment and the results of class observations in cycles one and two as a whole show that the achievement of all three classes has exceeded the point of it's 2.5 Average pre-test scores, cycles one and two can be seen in graph 1.

Graph 1.

Average student scores in Pre-test, Cycle 1 & 2



Overall the class has improved during CAR for presentation skills that initially 1, 22 to 3.72 then for the initial knowledge base 0.99 to 3.92 and critical thinking initially 1 to 3.92. Statistical results from this CAR can be seen in table 3.

Table 3: Statistical CAR results

p value	2.01E-79
Sig	Significant
mean pretest	0.892308
mean posttest	3.923077
difference	-3.03077
inclination	Increased

Data obtained shows an increasing tendency score. The value of this study shows a significant p-value so that it can be concluded that Ho is rejected, and the use of Project-Based Learning in Making Video Conference can Improve Student Presentation Ability.

Reflection: From the presentation of the analysis above, it is found that there is a need to make improvements so that the results obtained in cycle 2 are even better. Of all components, the critical thinking component achieves the smallest achievement of the entire class. Improvement steps are needed so that in cycle two students can think more critically, namely: 1) Discuss presentation material in class, 2) Mentrigger critical power of students in the class, and 3) Give a quiz that explores student presentation material. Meanwhile, for the presentation skills and knowledge base, each participant will be asked to improve it in class. Repair Presentation Skills will be carried out through the following steps: 1) Short presentations in class, 2) Brief discussion of effective presentation techniques, 3) Improvement of Knowledgebase is made through the steps as follows: 1) Regular guidance with mentors 1 and 2, 2) Completion of chapters 1, 2 and 3 in the middle of November so that the video assessment does not take too long, then rules are made to look at the first 5 minutes of the presentation and question and answer session (10 minutes in total).

DISCUSSION

Project-Based Learning Making Video Conference Can Improve Student Presentation Ability. Research Chen, C.-H., & Yang, Y.-C. (2019) which concludes from 30 electronic journals reviewed from 1998-2017 that PjBL is a method that has a positive effect on increasing student academic achievement. Presentations at a video conference that fit the criteria set by the lecturer in the assessment rubric are part of the student's academic persuasion. Thus the conclusion of the PjBL as a method that can improve student presentation skills is supported by valid and reliable previous research.

CAR with PjBL can be applied by lecturers on specific subjects so that students' academic achievement will be better. However, this model requires the creativity of students who are above average, such as high learning motivation, collaborative learning attitudes, ability to solve decent problems, and self-regulated learning attitudes. PjBL is able to motivate, enhance collaboration and communication (Sawamura, 2010). To be able to apply the project-based learning model requires universities or lecturers and students to provide adequate learning facilities and infrastructure in accordance with the necessary competencies of the subject matter to be discussed (Rais, 2010). The use of PjBL is a means for students to get achievements by showing respectable performance in presentations. PjBL's focus is on presentation exercises through video conferencing, which are made by lecturers as projects for students because PjBL is a learning strategy that empowers students to master new knowledge and publish their knowledge through various forms of publication (Klein et al. (2009). PjBL also shows students about the real world, multidisciplinary issues that require critical thinking, involvement, and collaboration (Schwalm&Tylek, 2012). With PjBL, students

learn actively, reflectively, and share learning experiences (Jonassen, et al., 2003). However, to get PjBL with a higher effect on improving ability Klein, et.al., (2009) proposes different characteristics, namely: 1) PjBL must direct students to examine essential ideas through a question that is framed in-depth in the inquiry process, 2) PjBL also should according to students' needs and interests because the products produced come from presentations they are not independent of the delivery of lecturer information, 3) PjBL requires the use of creative thinking, critical thinking skills, and information to investigate, draw conclusions, and create content that is connected to the real world and authentic problems.

CONCLUSION

Based on aspects of presentation skills, knowledge-based, and critical thinking, the results were obtained that overall the class experienced an increase during CAR participation, for presentation skills that were initially 1.02 to 3.92 then for knowledge-based initially 0.75 to 3, 92 and critical thinking initially 0.90 to 3.92. The hypothesis can be concluded that the use of Project-Based Learning in Making Video Conference can Improve Student Presentation Ability. This research recommendation is expected to be used in other lectures. In addition, it can be developed further for other outcome as a skill needed by students in the industrial world. In addition, because this study involves three classes, it is recommended that this study be carried out in a particular class and be examined in more depth, both for actions and for desired results based on the instruments of this study.

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