

The Effectivity and Efficiency of Project Based Learning in Achieving Student's Expected Learning Outcome (A Case Study of Vocational School Students)

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ABSTRACT

The research paper aims to investigate the effectivity and efficiency of project-based learning method to achieve student's expected learning outcome. There are several aspects and strategies which need to be considered to achieve effectivity and efficiency in the project-based learning method with student's expected learning outcome, they are: grouping students, working comprehensively, knowledge seeking through project, self-evaluation, and conclusion. To conduct this research, students of vocational school in Faculty of Economics, Universitas Andalas are required to make projection of common size and comparative analysis for manufacture companies in order to predict their financial statement in the future. The observation of the research is held for 16 weeks whereas 3 weeks focus on the project and 2 weeks are for evaluation. The results show that project-based learning can assist students and lecturers to achieve the expected learning outcome of the course program effectively due to student's self-paced learning within a team and active student's collaboration.

Keywords: *Project Based Learning, Expected Learning Outcome, Self-Paced Learning. Collaborate, Knowledge Seeking.*

1. BACKGROUND

Vocational school students are prepared with more skills when they graduate. Unlike students from undergraduate which is equipped by strategic and analytical thinking, students of vocational school will focus on the skills they have to meet industry's needs. Unfortunately, during Covid-19, long distance learning has made some challenges in learning method from offline meeting into online meeting, which is believed that the skills obtained from learning process will decrease 50%. Between students and teachers, who have never conducted online learning, these could be an issue.

To prepare the student's skills needed by industry and company through online learning, the utilisation of technology has a significant contribution to students' development. The target and objective of the expected learning outcome must be revised in order to meet the industry and company criteria.

Financial Statement Analysis is a course subject in Accounting department which requires student's

understanding in preparing and analysing financial statement. As vocational students focus on application and the projection in this course subject, student's need to be more aware to understand how to conduct financial statement projection. One of the expected learning outcomes for vocational school in Accounting department is students need to be able to project the common size and comparative analysis for company in the next three years. This is not easy since online learning also limit the learning activity. Therefore, teachers can utilise project-based learning to improve student's ability and to assist student to achieve expected learning outcome.

1.1. Student Grading Systems

This course subject uses summative and formative grading systems. Both summative and formative assessment have different functions and purpose in learning and grading systems. Summative is a mechanism where exam, tasks, and hard skills are required to be performed in the virtual learning. This

argument stated by Qu and Zhang (2013), there are different forms of summative and formative which each of them also has different functions. When implementing in the class, between summative and formative systems should be mixed in teaching and learning process. The combination of summative and formative also creates a positive and pleasant ambience for students to learn. And it will be a new atmosphere for students to enjoy the class.

However, the summative assessment practices were criticised as distanced from the learning process (Houston, 2017). Currently, the discussion has refocused on each characteristic of formative and summative assessment because the assessment plays important part in this grading systems. Through a variety of frequent assessment in each category, judgement of student performance is accompanied with feedback and insights on how the grading system is conducted. To see it clearly, how the grading system will contribute to the learning process, the table has been shown below.

Table 1. Students Grading System

No	Component	Weight
1. Summative Assessment		
a.	Mid Term Exam	20%
b.	Final Exam	20%
c.	Group Assignments	10%
d.	Discussion Participation	10%
e.	Project-based Learning	25%
2. Formative Assessment		
a.	Interpersonal skills dimension	5%
b.	Interpersonal soft skills attribute	5%
c.	Attitude	5%
Total		100%

The grading system which is implemented in the class consist of mid-term exam, final exam, group assignment, discussion and participation and project-based learning. The weight of summative assessment is 85% out of 100%. For formative assessment, there are three aspects that will be assessed, namely; interpersonal skills dimension, interpersonal soft skills attribute, and attitude which each of them equals to 5%.

1.2. Research Objectives

The research objectives are to explore the effectivity and efficiency of project-based learning in achieving expected learning outcome. The detail of the research objective is described as follows

1. To explore the effectivity and efficiency of project-based learning in achieving expected learning outcome for vocational school students.
2. To seek the extent of project-based learning conducted in online learning modes for vocational school students

2. OUTCOME TARGETED STRATEGY

The outcome targeted strategies of this research are:

1. The Semester Learning Plan which needs to be revised with the project-based learning activity.
2. The effectivity and efficiency of project-based learning.
3. The aspect affected the students in using project-based learning in class.

to achieve the outcome, the author has prepared strategies as follows;

The semester learning plan is revised accordingly to the learning approach. Meeting 1-7, students are given the material about financial statement analysis. Students learn and do exercises every meeting. Meeting 8 is Mid term exam, where all the material is examined and tested. Meeting 9-11, students have project-based learning, where students are asked to make projected financial statement of companies for three years ahead.

Online learning is one of the possible ways to conduct during pandemic. One of the reasons is that virtual synchronous learning during Covid-19 will ease students and teacher to conduct the process. Mixed synchronous learning will contribute some potential advantages for students because of its flexibility, however, there are some issues from technology and pedagogy to be applied in this method. (Zydney, 2020)

In this subject, the researcher will apply virtual synchronous, self-paced asynchronous, and collaborative asynchronous. Therefore, to achieve the effectivity and efficiency of project-based learning, students are encouraged to join discussion forum to share and discuss with other member and teacher in this project-based learning. There is a relationship between student’s self-reported use of interactive functions, and student’s actual use logs have some direct influences on students online learning performance, the example of those, are the grade for virtual discussion, examination grade, and group projects. (Wei, 2017)

By working collaboratively with other members, students are more well informed and exchange discussion with other members. The discussion on online learning can be achieved through discussion forum, zoom meeting, and group of WhatsApp. There are several factors to know the successfulness of online learning, the

user interface, time allocation and feeling fun in online learning systems (Song.et.al, 2004).

3. METHODS

Qualitative design is used in conducting this research. The author will describe the activities in the class for 16 meeting, and use literature review to assist in finding the proposed question in this research.

The researcher collects information and documentation in order to know the strategy of effective and efficient online learning to achieve the expected learning outcome. After that, the researcher will categorize several activities which will be conducted in online learning. The activities conducted in the virtual class, later on will be adjusted in the semester learning plan.

Based on the research objectives that have been set up previously, there are some aspects that will be done in this research description, they are;

1. Grouping students
2. Working comprehensively
3. Knowledge seeking through project
4. Self-evaluation
5. Conclusion

Each part of these aspects will be elaborate in result and discussion part.

4. RESULT AND DISCUSSION

From the activities which have ben conducted in the class, the results show that the effectivity and efficiency of online learning systems are triggered by several factors. The author will describe the best strategy on effective and efficient of online learning to achieve student's expected learning outcome.

4.1 Grouping Students

Before conducting project-based learning, teacher will form a group of students consist of 3. The forming of a group aims to make students feel enjoyable to discuss and work load division. In the group, there is a leader who will lead the group and assign the tasks to the members. Assigning task must be equally and the members can feel objection if the assigned task is too much.

However, the action of project-based learning in the class with online mode has constraint. The internet connection, and the member faces and names are quite hard to recall since they do not meet each other previously. Thus, the teacher gives space and time for each group to know each other, the discussion forum and zoom meeting using breakout room are the media for

each group to communicate and further discussion. The learning system used is iLearn owned by Universitas Andalas. iLearn will assist students in working together in terms of workload and discussion. The use of iLearn is quite effective and efficient since students can participate in their group. Virtual learning is effective and efficient for teacher and students, because there are several aspects to be considered, such as technology. There are some factors contributed to assist the process of online learning become more effective and efficient, they are network, infrastructure, media, and humans more effective and efficient. Lagging and buffering in internet working, unsupported media to access online learning, and human illiteracy in utilising media are the most reasons why online learning is not effective and efficient.

Gettoui (2011) stated that the advanced and the most expensive blackboard is known as LMS. Because LMS uses five contributors, they are learning, community, portfolio, content and outcomes. Another research argues that online pedagogical tools enable students to write, share, answer, discuss, and rate multiple choice questions with little to no input from the instructor—had better learning outcomes and improved perceptions (Nguyen, 2015). Virtual learning contributes positive learning outcomes which will assists students to improve their grading, student's engagement of hand out and materials, and to enhance of the university's performance

4.2 Working Comprehensively

When the group have already formed, and each group is ready to work collaboratively, the leader will have role to lead each group. The leadership, time management, and task assigning will be the role of leader take place. These soft skills will be assessed and graded as summative grade system. Each group will communicate each other within a team and work comprehensively in three weeks to finish the project-based learning.

To work comprehensively within a team, again, the use of technology in online learning is needed. Engagemnet between students and teacher in virtual learning will use technology. The better the technology will impact to the higher understanding and grades of students.. Online design education should be integrated with various educational values and functional features in a systematic manner and requires designing learning evaluation protocol as part of learning activities and communicative forms within online-based learning sites (Park, 2011). There are three aspects for virtual learning which is called virtual learning environment (VLE) namely, interactive delivery structure, communication channels, and learning evaluation. Thus, it is hoped that the learning sites can support and bridge between the necessities of project-based learning with the action in the class, which will give any benefit to students.

4.3 Knowledge Seeking Through Project

Through the project-based learning, students are encouraged to work collaboratively. By having this, students can obtain knowledge through doing the project-based learning. The knowledge can be derived from discussion with team member, searching in literature, and conduct the project. The project based learning which is assigned to each group is to make projection of common size and comparative analysis for the next three years.

In addition, knowledge seeking will last longer to the students if the student search it by themselves. This is an advantage for students since they obtain not only the concept but also the implementation of projected income statement and financial statement position for three years. The analysis can be generated through this project-based learning and the student's expected learning outcome can be achieved.

4.4 Self Evaluation

After conducting the project for three weeks, students are encouraged to make the report and do presentation about what they have already done. The report and presentation in a group is done in week 14 and 15, where students have finished obtaining the project-based learning in a group. Students also need to focus on the analysis based on their projected income statement and financial statement position.

The teacher is as facilitator in the week of presentation and report. Teacher needs to follow up the report which students submit. In the presentation, the teacher needs to give insights and suggestion, if any, in order to assist student's understanding in concept and practice.

4.5 Conclusion

In the last meeting, meeting 15, the teacher will sum up all the material given as a review and also give general feedback to the students who have done their project-based learning. This is very important since the learning approach and concept will be integrated and students can have more knowledge and capabilities by having project-based learning. So, vocational students have been equipped with the competencies needed by industry or companies.

Since the meetings are online modes, the advantages and disadvantages of virtual learning approached have been described previously. The advantages of virtual learning in the classroom are professional development, cost effectiveness, credit equivalency, the enhancement of being a world class education to anyone with good network. However, the disadvantages are virtual learning require more focus from students, particularly to understand the materials. Another disadvantage is that virtual learning must be supported by not-cheap media

and for some students who cannot afford the media or the gadgets, this virtual learning will be a matter. Therefore, there re several aspect which needs to be considered since virtual learning will involve some parties, including students, teachers, and the media to use.

5. CONCLUSION

The conclusion that can be withdrawn from this research is that optimizing project-based learning in the class to assist student's capabilities can be conducted as it will improve the student's capabilities and competencies. Project-based learning also can assist students to achieve the expected learning outcome.

The effectivity and efficiency of utilizing project-based learning will give any impact to the process of learning particularly during Covid-19, where the online mode of learning is conducted.

AUTHORS' CONTRIBUTIONS

The authors in conducting this research have decided the workload equally. The first author has worked in semester learning plan to adjust with the activities in the virtual class while the second and the third authors collect the literature to add soe information in this paper and focus to learning development especially in the technology tools.

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