Electronic Project Based Learning to Improve Effectiveness of Teaching

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ABSTRACT

We look at the effectiveness of teaching through electronic project-based learning in this study. We are experimenting with college students to achieve this goal. We divided 100 students into two groups: control and experiment. Both groups were taught on the same topic by the same lecturer in the same amount of time. The control group used ordinary learning to complete the lecture material. The experimental group met with Electronic Project-based learning. Student knowledge was then assessed in the same way in both groups. We used inductive statistics to compare the data to evaluate whether the difference between the results of the two groups was significant. We used a parametric two-sample t-test to compare the mean values of the two independent samples for comparison. We were able to show that electronic project-based learning is more efficient than traditional learning. We believe that electronic project-based learning has a place among teaching approaches because it can provide additional benefits over standard instruction. This is also supported by the questionnaire results that we used to collect student responses after the trial was completed. Almost all students say that electronic project-based learning is very fun. From that response, it was confirmed that electronic project-based learning was effective in the teaching process

Keywords: *electronic, project base learning, effectiveness, teaching*

1. INTRODUCTION

Education must be able to help students develop their talents and abilities and provide a stimulus for the growth of society as a whole [1]. Graduates are expected to be able to build meaningful talents and enthusiasm to achieve quality human growth through the educational process because of the education they have received [2]. A concept recognized by lecturers is that instructors play an important role in developing quality graduates [3]. Setting up a learning environment and methodology that allows students to gain experience and knowledge of information obtained through student discoveries is one of their main tasks [4]. As a result, schools must work to develop children's creative thinking talents [5]. Students are expected to be able to compete in a fast-paced environment.

The problem in this study is that many students only rely on their temporary abilities. This shows that the ability only appears when students receive something from an instructor or a capable individual. students can use their work without adding creativity or creative thinking [6].

Based on observations, it was found that most of the lecturers did not convey information about the learning objectives that students must achieve from the beginning of learning [7]. The material is only explained to students, who then work on the questions/assignments. Students seem anxious to study because they are hesitant to do the questions. Learning at the tertiary level has been defined as learning that is more dominated by students than lecturers (student centered), where students focus more on memorizing formulas for various subjects or features, especially in the field of economics. The role of the lecturer is to offer the subject matter and convey the benefits and philosophy of the class to students to promote their learning. Learning should not be solely focused on course content, but should be dynamic, with students actively allowed to investigate real-world problems and challenges to gain deeper and contextual knowledge.

One of the most important goals of higher education is to professionally equip students and adapt to changes in the workplace. The aim is to provide students with solid information and practical skills and sufficient competencies to find suitable jobs in their professional

careers [8]. This statement is who argue that a high level of professional competence and ability is only the beginning of career success. However, while skills, knowledge, and experience are important, they are not sufficient to produce perfection. Students' curiosity and creativity are disturbed by non-traditional teaching approaches, which encourage them to participate in lecture activities [9]. These methods are mainly focused on student activity and independent work, as they progress from passive methods of acquiring knowledge (e.g. interpretation, explanation) to more active methods of obtaining information, becoming more or less independent implementers of their own education [10].

This type of method is known as a project-based learning model in the realm of education. The purpose of this study was to determine the effectiveness of using the Electronic Project-Based Learning (EPjBL) model [11].. EPjBL is applied in developing countries and is able to develop students' contextual abilities. The approach used in this research is quasi-experimental, where participants are separated into two groups, the experimental class and the control class[12].

2. METHOD

Quantitative descriptive method is used in this research. Experimental research approach. Comparing two different treatments. Then the effectiveness is seen through the distribution of questionnaires.

3. RESULT AND DISCUSSION

The level of teaching effectiveness in universities can be classified as high, moderate, or poor. This can be assessed using observation sheets and questionnaires [13]. Data on the progress of students towards effectiveness with the tasks given to students is the result of the completeness of the observation of effectiveness in this study [14]. The results of the questionnaire showed data on effectiveness readiness in the observation category in universities [15].

The questionnaire results also showed that the total average of the characteristics of learning effectiveness was 88.86 when converted to a Likert scale, which was very good [16]. The significance of the learning process based on the results of the high category student questionnaire is presented. Student responses to the high category student learning effectiveness questionnaire meet very high standards [17]. As a result, electronic project-based learning may benefit effective learners in those categories [18]. The percentage of the effectiveness of the lecturer's observations in delivering the material, and the average effectiveness of the learning process of students in the medium category met the very good criteria. If the average of the results of the questionnaire is changed to a Likert scale, the average teaching effectiveness carried out by lecturers in the low category meets very

good standards [19]. The results of the questionnaire also showed that the total average effectiveness of the tasks given by the lecturers in measuring the level of learning achievement was 88.11%, which was quite good. Furthermore, the results of the questionnaire also showed the results of the effectiveness questionnaire on students in the low category. When converted to a Likert scale response, the average effectiveness of the questionnaire was 84.24 which met the very good standard.

Learners can act creatively and innovatively to modify and create suitable and interesting projects [20]. The things mentioned above are some interesting issues regarding the need to apply electronic project-based learning in the learning process, where there are different views on the strengths, weaknesses and challenges that must be faced during the implementation process [21].

In addition to these problems, the time to interact and discuss with colleagues and lecturers is not enough because the curriculum content is too dense and time is limited [22]. The lack of time for teachers to complete the syllabus because the size of Living Skills is too broad and the number of students sometimes exceeds 40 people for one class makes practicum learning cannot be carried out perfectly, so it is rarely applied [23]. The problem of time to do electronic project-based learning will be easier to manage, because learning can be done anytime and anywhere.

According to interview data, Effectiveness of tools in the form of modules assist students and teachers in online learning. This quick and effective online teaching material is useful when instructors are unable to attend because it includes an overview of the topic and explicit learning assignments [24]. Video tutorials are quite crucial for module operations due to the limitations of mastering the current software features. Even though modules can include videos, links, and other information in one package, learners and instructors feel that this device's structure is more practical to utilize. Device support is essential, even though upgrading supporting features for specific devices is essential due to the application [25].

According to the user, modules and tutorial videos are examples of creating digital solid teaching resources in terms of performance [26]. This is consistent with other findings, which revealed that studying digitally improves students' learning goals and motivation in the present generation [27]. When students have access to the technology and practical things to explore, they are more engaged in learning, which can be discovered through eLearning with a range of school resources like as modules and video tutorials [28]. These findings imply that, besides earning attention to the types of digital teaching tools available, educators should look into the elements of students' interest and activeness as learning designers [29]

4. CONCLUSION

Based on the findings and discussion of this study, it was concluded that electronic project-based learning is beneficial in equipping students with effectiveness in the high, medium, and low categories, with observations and questionnaires meeting extremely high standards. Because effectiveness is one of the goal from teachers for make competences to current learners and as a preparation for the future, which is filled with global competitiveness, project-based science learning linked with e-learning can be deployed as early as feasible to effectiveness.

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