ETJ
(Educational Technology Journal)

Volume 4, Nomor 2, Oktober 2024, 30-35
ISSN 2797-2593 (Online)

https://journal.unesa.ac.id/index.php/etj

IMPLEMENTATION OF PROJECT-BASED LEARNING TO IMPROVE THE LEARNING OUTCOMES OF CYBER BUSINESS LECTURES FOR INFORMATION SYSTEMS STUDENTS OF PIGNATELLI TRIPUTRA UNIVERSITY CLASS OF 2022

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Abstract

This research aims to evaluate the effectiveness of implementing the Project Base Learning model in Cyber Business lectures for the Information Systems students of Pignatelli Triputra University, Class of 2022. The research method used is an experiment with a Pretest-Posttest Design. The subjects of the study consist of one class comprising 18 students. The testing process involved implementing conventional lectures from the beginning of the semester until the midterm and then utilizing the project-based learning method until the end of the semester. The test results indicate that the data are distributed normally and homogeneous, and the hypothesis testing using the T-test shows that the use of the project-based learning lecture model significantly affects learning outcomes compared to conventional lecture models. This study demonstrates that the project-based learning model effectively enhances learning outcomes for Information Systems students of Pignatelli Triputra University, Class of 2022, in the Cyber Business course. This lecture or learning model is an alternative for teachers, educators, and schools to develop more effective, creative, and innovative learning strategies.

Keywords : Project based learning, Learning outcomes, Cyber business, Classroom action research.

Abstrak

Penelitian ini bertujuan untuk mengevaluasi keefektifan penggunaan model Project Based Learning perkuliahan Cyber Business bagi Mahasiswa Sistem Informasi Unversitas Pignatelli Triputra Angkatan 2022. Metode penelitian yang digunakan adalah eksperimen dengan Pretest-Postest Design. Subyek penelitian terdiri dari satu kelas yang terdiri dari 18 mahasiswa. Proses pengujian dilakukan dengan menerapkan perkuliahaan konvensional yang dilakukan dari awal kuliah hingga ujian tengah semester, dan kemudian menggunakan metode project based learning hingga ujian akhir semester. Hasil pengujian menunjukkan bahwa data berdistribusi normal dan homogen, serta hasil uji hipotesis menggunakan uji T menunjukkan bahwa penggunaan model perkuliahan project based learning memiliki pengaruh yang signifikan terhadap hasil belajar bila dibandingkan dengan model perkuliahaan secara konvensional. Dalam penelitian ini menunjukkan bahwa model pembelajaran project based learning mampu meningkatkan hasil belajar secara efektif oleh mahasiswa Sistem Informasi Universtitas Pignateli Triputra Angkatan 2022 pada matakuliah Cyber Business. Model perkuliahan atau pembelajaran ini dapat dijadikan sebagai alternatif bagi dosen, guru dan sekolah dalam mengembangkan strategi pembelajaran yang lebih efektif, kreatif dan inovatif.

Katakunci: Pembelajaran berbasis proyek, Hasil belajar, *Cyber Business*, Penelitian Tindakan Kelas

Introduction

Lectures are something that will not be separated from the learning process. The lecture process involves interaction between lecturers and students, and this is crucial in the lecture process. Lecturers have an important role in the world of higher education to provide material as a provision for students to master a field of knowledge so that good skills are needed in processing material, providing motivation, and being able to make students interested in the material so that the lecture process can take place effectively and students can follow it enthusiastically. In the lecture process, lecturers generally provide material with classical or conventional methods so that lectures run in one direction such as some popular learning techniques / lectures carried out before entering the Covid 19 pandemic period, but after passing through that period lecture techniques or learning with conventional methods cause students to be bored and the material taught is not well received by students, So that when students get questions related to the material taught, the average student is not able to answer correctly (Muruwae, 2022; Qualified, 2021; Febrianto & Susanto, 2023; As Salafy & Susanah, 2022)

The lecture process was also reviewed how the value of student activities who tended not to ask questions because they did not understand and students seemed to just come to attend lectures with low motivation scores caused by the large number of students working and lecturing. (Indriyani & Handayani, 2018) Project-based learning is a learning model that makes students are required to be active in analyzing and developing a theory or concept in the course so that students are able to think critically, this technique is able to encourage students' interest and fighting values in learning and developing the thinking process. Through this lecture method, students will have direct involvement with the problems faced in accordance with the challenges or cases that exist in the course with creativity that is generally possessed by young people. This (Wang, 2022) (Ummah et al., 2019) project-based learning is implemented with the hope that when working later, students can find creative and innovative creations and thoughts, based on case cases given in lectures that are completed using lecture projects (Maros, et al., 2023). Project-based learning in information systems can make students understand how much information systems and the internet (cyber) play a role for problems that may be present in the future so that students can study the influence of information systems on their companies or businesses (Rondonuwu et al., 2022).

Cyber Business is a course that discusses the development of internet-based digital technology and how the internet implementation process affects business processes in it by paying attention to various elements, especially digital security elements in business (Akbas Tuna & Thompson, 2022) Cyber Business is a novelty in the field of e-business. Cyber Business carries out an integration process between financial management, entrepreneurship, and strategic management with internet technology so that Cyber Business is an interesting course that combines the latest technological elements as the strength of a business (Mkansi, 2022) Cyber Business is inseparable from material related to digital business, digital business is more focused on the content in it while Cyber Business is more focused on the use of the internet as a system that supports security processes in its operations. This (Evans, 2022) project-based learning technique is carried out to make the lecture process more colorful, more active and able to give birth to creative innovations in Cyber Business lectures.

Methods

This study is a quantitative research that adopts a Quasi Experimental design using the Pretest-Postest Design model. The analysis methods include descriptive analysis, normality test, homogeneity test and hypothesis test using the T Test. The subjects of this study are 3rd semester students of the Information Systems Study Program, Pignatelli Triputra University as many as 18 students who are assessed before the midterm exam using the Conventional teaching method and after the midterm exam using (Veronica et al., 2022; Danish Anonymous et al., 2021) Project Based Learning. Before carrying out the data collection stage. Before collecting data, a

prerequisite test for research analysis is carried out to check the validity and reliability of the research. The mean difference analysis was carried out using (Fadli, 2021). SPSS 27 Software using the Independent Samples T-Test Technique, which was used to compare the averages of the two unrelated data in one sample. In this context, the data in question is the value of the difference between the pre-test and post-test of the type of lecture conducted (Endang , 2018).

Results and Discussion

Validity and Reliability Test

The validity and reliability value test was carried out based on the results of valid calculations with the number of questionnaire questions with a total of 15 questions containing the integrity of the validity test. Then a reliability test was carried out on the questionnaire questions to obtain accuracy data, and concentration on the research instrument. The reliability test using the Alpha Cronbach formula obtained a calculated r value of 0.974 and then compared with a significance level of 5% from the table r of 0.468. So that 0.974 > 0.468 are obtained or can be stated if r calculates > r table. So each component of the questionnaire is declared reliable.

Data Normality Test

The normality test was carried out using the Kolmogorov-Smirnov method, the results of the test were obtained when the significance value of Asymp was obtained. The. (2-tailed) of 0.711, which is greater than 0.05, so it can be concluded that the data obtained has a normal distribution. This indicates that the normality requirements in the model are stated to have been met so that it is possible to carry out the next stage of testing.

Homogeneity Test

The homogeneity test was carried out and obtained a significance value of 0.706, which is greater than 0.05 (alpha value) so that it can be concluded that the variation of data between pre-test and post-test is homogeneous. So it can be concluded that the data obtained after going through the validity, reliability, normality and homogeneity test process shows a normal and homogeneous distribution.

Test T

The T-test is a statistical tool used to evacuate the existence of significant differences in efforts to improve learning outcomes between conventional lectures and Project-Based learning. The data analysis process related to the T Test is presented in the following table which presents a detailed overview of the steps taken and the results obtained from the results that test the difference.

Table 1. T Test Results

Group Statistics

		Types of Tests	N	Mean	Std. Deviation	Std. Error Mean
Cyber Business Lecture Results		Pre_test	18	47.28	9.554	2.252
		Post_test	18	62.78	7.997	1.885

Table 2. Results of the Cyber Business Lecture Data Hypothesis Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
			r.		f	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Cyber Business Lecture Results	Equal variances assumed	.145	.706	-5.278	34	.000	-15.500	2.937	-21.468	-9.532
	Equal variances not assumed			-5.278	32.978	.000	-15.500	2.937	-21.475	-9.525

The average score of the pre-test and post-test of the learning outcomes with students during the pre-test (using conventional lecture techniques) with the post-test (project based learning) is presented in the following figure:

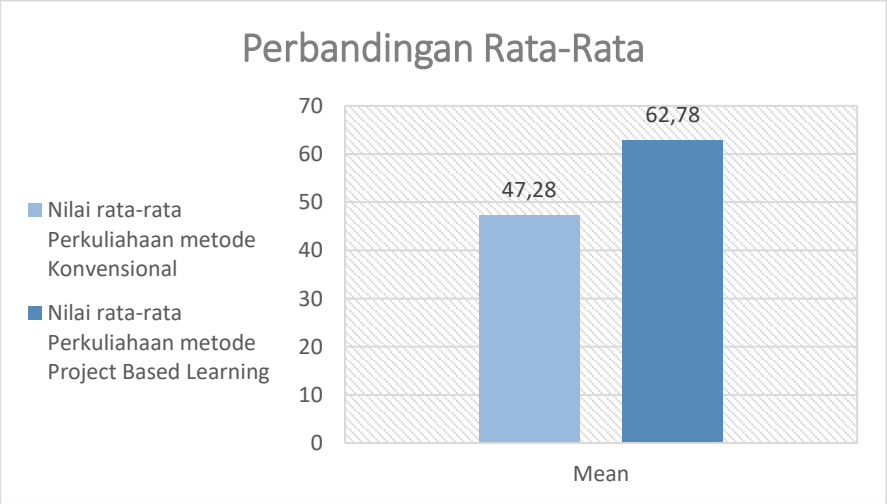

Figure 1. Comparison of average lecture methods

Figure 1 explains that there is an average increase of 15.5 or 33% which explains that lectures using project-based learning can increase the value of learning outcomes from conventional lecture methods. From the table of T Test results and the Table of Hypothesis Test results, it shows that there is a difference between the pre-test (lectures with conventional methods) and post-test (lectures using the method (project-based learning) in Cyber Business lecture participants. Based on the two tables above, a Sig.(2-tailed) value of 0.00 is obtained which is smaller than 0.05 (alpha) so that the conclusion is obtained that H0 is rejected and Ha is accepted, so that a conclusion can be obtained if project-based learning is able to improve learning outcomes in Cyber Business lectures in Pignatelli Triputra University Information Systems students class of 2022/2023 in accordance with the results of research previously conducted by Nurcholis Arifin Handoyono and research conducted by Theresia Wariani. This happens because (Handoyono & Rabiman, 2016; Wariani &Hatch, 2023) project-based learning focuses on a special problem that

makes students able to think creatively and be able to find innovations in solving problems presented in the project (Chen et al., 2022; Yang et al., 2023)

Conclusion

Through the data analysis process, it was shown that the use of the project-based learning lecture model was able to improve the learning outcomes of the Cyber Business course for Information Systems students of the Class of 2022 at Pignatelli Triputra University. Things that need to be considered in the use of the project-based learning lecture method need to pay attention to readiness in the deepening of mature knowledge, so that students can complete projects and provide satisfactory results/innovations.

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