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Effectiveness of Project Based Learning in Blended Learning Setting to Increase Student Knowledge and Skills in Pencak Silat

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Abstract

This study aimed to improve student knowledge and skills in Pencak Silat by applying project-based learning in a blended learning setting. The research method uses an experimental with a quasi-experimental design, involving a control group and an experimental group. The study participants involved 70 college students divided into a control and random group using a random sampling technique. The data in the study were collected by utilizing a questionnaire—data analysis using Paired Sample T-test method. The study showed that the Project-Based Learning model in a blended learning setting improves student knowledge and skills in the Pencak Silat learning process. It can be seen from the increase that occurred in the control and experimental groups. Thus, learning Pencak Silat through Project-Based Learning in a blended learning setting is an effective alternative to improving student knowledge and skills in Pencak Silat.

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INTRODUCTION

Pencak Silat is commonly known as a martial art. UNESCO has recognized this martial art as a nation's cultural heritage (Syaifullah & Doewes, 2020). However, Pencak Silat can also be found in Asian countries, such as Malaysia, Brunei, Philippines, Singapore, and southern Thailand. However, Pencak Silat is a sport originally coming from Indonesia (Ediyono & Widodo, 2019). This sport is quite challenging. In addition to kicks and punches, the main movements also include take-downs that should be done as gracefully as possible. Pencak Silat has various benefits behind the complexity of its movements (Subekti et al., 2020).

IPSI (Indonesian Pencak Silat Association) states that, in Pencak Silat, we not only study self-defence aspects, but also the aspect of mental-spiritual or character, arts, and sports (Pratama & Trilaksono, 2018). These aspects have many benefits for the development of human beings, especially if they are instilled at an early age. In Pencak Silat, there is also a mental learning (Riani & Purwanto, 2018). In addition, Pencak Silat could also develop social interaction both with the members of their Pencak Silat organization and with the members of other Pencak Silat organizations. The interaction will help develop an individual's personality (Barikah et al., 2020).

Interest is a driving force that causes a person to desire to be directly involved in the activities they like (Yunariswan & Hariyanto, 2021). Students can be reluctant to learn because the activity is not interesting; thus, the students do not get satisfaction from what they learn. Meanwhile, when the material for activities is interesting, the students will be easy to learn because interest could increase their willingness to learn. With interest, students will have more achievements in Pencak Silat activities they participate in. Increased interest will be achieved if students can understand the material well. This understanding is important to trigger them to continue exploring the Pencak Silat material sustainably (Yunariswan & Hariyanto, 2021).

The selection of the right learning model will certainly provide the best possible solution and achieve the objectives of the learning implementation. A learning model is beneficial for improving the student enjoyment in the lesson, increasing their motivation and creativity in learning, and helping students achieve better learning outcomes easier (Tangi, 2014). In education, a teacher needs to master various kinds of learning models because the success of learning is related to the use of appropriate learning models and methods so that the learning objectives can be achieved and the students are happy during the lectures (Supriatna, 2020).

In implementing a learning model, a teacher must have more knowledge and understanding to apply a learning model well in the classroom. The teacher must also know the condition of the facilities and infrastructure provided on the campus and relate them to the teaching plan. Teachers who do not know the condition are usually not able to optimally improve their student skills in learning, while the learning messages and objectives are also poorly understood by students, especially in improving Pencak Silat skills (Anwar & Jurotun, 2019). Teachers mostly still use the command and lecture method so that students feel bored during lectures because the learning is monotonous and boring; repeated movements without any variation would cause students to be less focused on learning (Schiff, 2020).

Research related to Project-Based Learning has been carried out by Laili (2019), who developed a Project-Based Learning e-module of Electrical Motor Installation subject on the student cognitive abilities. The treatment in the study was carried out offline by working on validated objective questions. In Hayati, Utaya & Astina (2016), Student worksheets based on Project Based Learning oriented to critical thinking were generated. Project-Based Learning in this study was carried out face-to-face through LKS, which helped students find a concept. There were learning activities to formulate the steps that students had to take and observe the phenomenon of the activity results. Then, they received analytical questions that helped them relate the observed phenomena to the concepts they should construct.

The previous studies conducted Project-Based Learning in a face-to-face setting. Project-Based Learning in a face to face setting can only be administered in the same space and time. Project-based Learning can be combined with technology to provide opportunities to run blended learning (Widiara, 2018). The application of blended learning is aimed to find a balance between face-to-face learning and online learning methods. Blended learning can change passive learning situations, where students only receive knowledge or focus on traditional learning models, become active by build-

ing their knowledge (Aditia Rachman et al., 2019). At the same time, blended learning provides ease in gaining understanding and offers flexibility, easy access, and integration with multimedia and high technology that supports learning activities (Rimawati & Saptomo, 2019). For this reason, this study aimed to investigate the implementation of Project-Based Learning model in a Blended Learning setting on students' Pencak Silat knowledge and skills.

METHODS

This study used an experimental quantitative approach. The design of this study used a quasi-experimental by involving the control group and the experimental group.

Participants

The subjects were college students of in Physical Education and Sports that consist of 70 students. Participants in the control group were 35 college students who provided the Project-Based Learning model conducted directly in 8 meetings. Meanwhile, the participants in the experimental group were 35 people provided with a Project-Based Learning model conducted eight times in a Blended Learning setting. The characteristics of the sample can be seen in the following table 1.

Table 1. The characteristics of the sample

Demographic Data	Mean ± SD
Age	19.24 ± 0.12
Weight	65.95 ± 0.91
Height	165.88 ± 0.78

The sampling process in this study used non-probability sampling where the control group samples were selected using purposive sampling, while the experimental group used the following criteria:

1. Having an interest in Pencak Silat,
2. Having problems with Pencak Silat skills,
3. Having problems related to Pencak Silat knowledge,
4. Willing to follow the complete learning program.

Instrument and Material

In this study, the implementation of Project-Based Learning was assessed based on the following indicators:

1. Projects are carried out based on problems
2. Students are engaged in a constructive investigation
3. The project is realistic
4. Students are actively involved

The assessment of Blended learning was carried out based on the following indicators:

1. Synchronous learning activities occurred at the same time and place.
2. Self-Paced Learning is a combination of independent learning activities (self-paced learning).
3. Collaboration is collaborative activities between educators and students as well as among fellow students.
4. Assessment is an activity where educators determine the learning development by choosing a suitable combination of various online and offline assessments.
5. Performance Support Material is preparing supporting learning resources and media in digital form accessible for the students.

Table 2. The material Intervention.

Project Based Learning model with Blended Learning setting	Project Based Learning model
1. Group Setting	1) Group Setting
2. Problem oriented	2) Problem identification
3. Idea generation	3) Idea generation
4. Coordinating students	4) Learning Issues
5. Learning issues	5) Self directed learning
6. Guide individual and group investigation	6) Synthesis and application
7. Brainstorm missing information	7) Reflection and feedback
8. Self-directed learning	
9. Develop and present the work	
10. Synthesis and application	
11. Analyze and evaluate the problem of the process	

The data collecting process related to the student's Pencak Silat knowledge and skills used observation or assessment sheets, while data collection related to Pro-

ject Based Learning used questionnaires. The material is given to the experimental group, and the control group is shown in more detail in table 2.

Data Analysis

Before testing the hypothesis, this study's questionnaire was first tested for its validity and reliability. The validity test in this study used the SPSS program with the product-moment criteria. Based on the instrument validity test results, all items had an r-count value more significant than the r-table. It concludes that all items of the instrument were valid and feasible to use. Based on the instrument reliability test calculation, each variable had a Cronbach alpha score > 0.6. The PJBL variable had a Cronbach alpha score of 0.638, and Blended Learning had a Cronbach alpha score of 0.652. It concludes that all instruments had a moderate level of reliability.

After conducting the prerequisite tests for homogeneity and normality, the next step was to test the hypothesis. The hypothesis test used was a two-way ANOVA parametric statistic. Finally, hypothesis testing was conducted to test the effect of conventional Project Based Learning method and Project Based Learning method in a blended learning setting on Pencak Silat skills and knowledge.

Table 3. Statistics Descriptive of Test Result

	N	Min.	Max.	Mean	Std. Deviation
Control	35	12.00	17.00	14.48	1.31443
Experiment	35	20.00	25.00	22.51	1.29186

RESULT

The results of the normality assumption test for PJBL variable obtained a significance value of 0.015 for the control group using the conventional method and 0.22 for the experimental group using blended learning method. The test results showed sig > 0.05 so that the data were normally distributed. The implementation PJBL learning methods for Pencak Silat using conventional methods is presented in Table 3.

Table 3 shows the mean of the control class (14.5) and the experimental class (22.5). The mean increase in the control and experimental classes was 8%. The t-test was used to determine whether there is a positive and significant effect of the application of the Project-based learning model in blended learning setting compared to conventional learning setting on the increase of student pencak silat knowledge and skills examined from the mean difference. The mean difference between the control and experimental classes was analyzed by t-test, as shown in Table 4.

Table 4. T-Test Using Levene's Test

	t-test for Equality of Means						
	t	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
						Lower	Upper
Control	-25.7	68	.000	-8.02	.3115	-8.65	-7.40
Experiment	-25.7	67.9	.000	-8.02	.3115	-8.65	-7.40

The test results showed that the probability value (sig.2-tailed) of the t-test was 0.000. Since the probability value is less than 0.05, it is indicated that the knowledge and skills of Pencak silat of students receiving the project-based learning model in a blended learning setting were better than students receiving the project-based learning model in a conventional learning setting.

Table 4 shows that the experimental and control groups both had an effect (sig. 0.000 < 0.05) on students' knowledge and skills in Pencak Silat. Nevertheless, the experimental group had a more significant impact than the control group, as presented from the mean value in the table obtained by the experimental group, which was greater, 22.5143, compared to the control group, which was 14.4857. From these data, the knowledge and skills of Pencak Silat of a student receiving the project-based learning model in a blended learning setting were better than students receiving the project-based learning model in a conventional learning setting.

DISCUSSION

Based on the study results, there were outcome differences between the class using conventional methods and the class using experimental methods. The class using the experimental method had a mean of 22.5%, while the class taught using the conventional method gained only 14.5%. Considering that Pencak Silat is a sport that has complex techniques, it requires

good coordination (Kenta, 2020). Therefore, using a suitable model will make it easier for students to recognize Pencak Silat material, such as the basics and specific movements. One of the learning models considered is the PJBL model (Mudianti et al., 2018).

The use of the PJBL model can be collaborated with blended learning to facilitate the implementation of online learning, which is currently being implemented to control the COVID-19 pandemics. A project Based Learning model is a learning model that uses projects/activities as the core of learning. Learners explore, assess, interpret, and synthesise the information to produce various forms of learning outcomes. Project-Based Learning is a learning model that uses problems as the first step in collecting and integrating new knowledge based on experience in actual activities (Grant, 2002).

According to several studies, Blended Learning can overcome time constraint issues. In a COVID-19 pandemic situation, where the most significant limitations are related to distance and time, blended learning will facilitate the material delivery process. Blended project-based learning uses online and offline learning tools (Khoiroh, 2018). Online learning tools are realized in the modified learning website containing learning contents, including materials and assessments. Offline learning tools consist of project work plans. Increased knowledge showed when students practice movements, patterns of position formation (standing, squatting, sitting, lying, and *sikap pasang*), movement formation patterns (forming directions), steps, basic defence movements (basic evasion movements, basic defence movements), and basic attack movements (with hands, elbows, and feet) (Rahmanto & Utama, 2018).

Project-based learning is a learning approach that emphasizes contextual learning through activities that result in projects (Prasistayanti et al., 2019). In the implementation, Project Based Learning provides opportunities for students to develop skills as the core of learning objectives (Insyasiska et al., 2015). In Pencak Silat, there is a term named Pencak Silat movement. The specific form of the Pencak Silat movement (gerpes) must be learned and mastered. These movements include position formation patterns (standing, squatting, sitting, lying, and *sikap pasang*), movement formation patterns (direction formation), step formation, basic defence movements (basic evasion movements, basic defence movements), and basic attack movements (by hand, elbows, and feet). In learning Pencak Silat, it is necessary to have foresight, seriousness, total concentration, and a basic technique to be mastered (Hardiansyah, 2019).

Blended learning has succeeded in increasing effective communication and interaction with the audience. Blended learning combines face-to-face learning by utilizing the internet for assisting the learning and teaching process (Kuntarto & Asyhar, 2016). Research conducted by K. Gavin proves that PjBL has appropriate characteristics when combined with blended learning to create learning that includes problem-solving, innovation, group, and presentation skills. According to Rahmi & Darmawan (2018), blended learning is based on the combination and interrelation of various learning models selected and adapted to optimize learning processes and services by utilizing technology. Learning is the combination of classical teaching (face to face learning) and online learning.

CONCLUSION

This study concludes that the PJBL learning model using a blended learning setting could improve Pencak Silat knowledge and skills. Therefore, learning Pencak Silat through PJBL using blended learning can be an alternative to improve students' Pencak Silat knowledge and skills. Based on the results of this study, it is hoped that it can be used as a reference in the implementation of PJBL combined with blended learning.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

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