



Effect of Blended Learning Method on The Outcome of Physical Education Learning for The Tenth Grade Students of SMAN 1 Gamping, Sleman Regency

Tri Ani Hastuti^{1*}, Dhevina Putri Harsyashena¹, Nur Rohmah Muktiani¹,
Willy Ihsan Rizkyanto¹

¹ Departemen Pendidikan Olahraga, Fakultas Ilmu Keolahragaan dan Kesehatan, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia
tri_anihastuti@uny.ac.id

Abstract

This research aims to determine the effect of the blended learning method on the outcomes of Physical Education learning for the tenth grade students of SMAN 1 Gamping (Gamping 1 High School), Sleman Regency. This research was an experimental study. The research method used one group pretest-posttest design. The setting place of this research was conducted at SMAN 1 Gamping, Sleman Regency. The population in this study was class the tenth grade SMA N 1 Gamping students totaling 150 students and a sample of 60 students taken by using probability sampling technique called simple random sampling. The research instrument was a test. The data analysis technique used the parametric statistics with t-test. The results of this research indicate that there is a significant effect (t count 19,895 > t table 1.67109) on Physical Education course at SMAN 1 Gamping after the implementation of the blended learning method. The resulting effect is classified as high with a percentage increase at 26.6%. Based on the results of this study, it shows that the blended learning method has a significant effect on the outcomes of Physical Education learning for the tenth grade students of SMAN 1 Gamping.

Keywords: Blended Learning, Outcomes of Physical Education Learning

1 Introduction

Education in Indonesia is a crucial aspect aimed at enhancing the potential of students. During the teaching and learning process, the active role of teachers as educators and students as learners is essential to achieve optimal learning outcomes. Conversely, if either party, whether educators or learners, does not actively participate, the results obtained will be less than optimal. However, it is not only educators and learners who influence the success of learning; the situation and conditions also significantly impact the teaching and learning process. This is particularly evident in the current context of the COVID-19 pandemic, caused by the coronavirus, which began spreading in Indonesia at the beginning of 2020. Several challenges faced by both learners and educators include excessive internet data usage, occasionally unstable signals, and the fact that some students still lack adequate facilities for teaching and learning activities.

The rapid advancement of technology and the availability of internet connectivity have broadened individual mindsets. Despite differences in space and time, this does not impede the flow of knowledge, information, and communication between teachers and students, especially during the COVID-19 pandemic. Consequently, the blended learning method has emerged as a viable alternative, particularly for the subject of Physical Education, Sports, and Health (PJOK), which involves motor or movement

aspects in addition to the cognitive elements that also play a role in the learning process [1]. A PJOK teacher must utilize appropriate materials tailored to individual needs to ensure that the teaching and learning process (KBM) aligns with the intended objectives. These instructional materials are employed to achieve several pre-designed goals [2].

Based on the researcher's observations at SMAN 1 Gamping during the COVID-19 pandemic, the subject of Physical Education, Sports, and Health (PJOK) has proven to be particularly challenging, especially in the practical application of movements. PJOK is closely associated with practice, requiring teachers to be more creative and innovative in determining appropriate teaching methods to adapt to the current conditions. The author's observations at SMAN 1 Gamping revealed that many students were passive and unenthusiastic during the teaching and learning process (KBM) when receiving material presented by the teacher. This lack of engagement was attributed to the teacher's reliance on conventional methods and the insufficient use of ICT in PJOK instruction, making the learning process less engaging. The predominant use of the Google Classroom platform was monotonous, lacking direct interaction with students and failing to adequately address their needs. Consequently, it remains uncertain whether students fully comprehend the material taught, and the achievement of the learning objectives is yet to be determined.

2 Method

This study is an experimental research. The method used in this research is the Pre-experimental design. The research design employs a One-Group Pretest-Posttest Design, where a single class is used as the research object, functioning both as the control group (before the treatment) and the experimental group (after the treatment). This type of research is chosen because obtaining a separate control group is not feasible. In other words, data from the control group is referred to as the pretest, while data from the experimental group is referred to as the posttest.

This research was conducted at SMAN 1 Gamping, located at Jl. Tegalyoso, Area Sawah, Banyuraden, Gamping District, Sleman Regency, Daerah Istimewa Yogyakarta. The population of this study comprises the 10th-grade students of SMAN 1 Gamping, consisting of four classes with a total of 150 students: X IPA 1 with 38 students, X IPA 2 with 37 students, X IPS 1 with 38 students, and X IPS 2 with 37 students. The sampling technique used is probability sampling, specifically simple random sampling, where the researcher provides equal opportunities for each member of the population (students) to be randomly selected as a sample, without considering the strata within the population. This study utilizes Slovin's formula to ensure the sample size is representative, eliminating the need for a sample size table in the calculations.

3 Results

T-test (*Paired sample t-test*)

The results of the Paired Sample T-Test are determined based on its significance value, which can then be used to make decisions in the research. If the significance value (2-tailed) is less than 0.05, there is a significant difference between the pretest and posttest

variables. This indicates that there is a meaningful impact due to the difference in treatment applied to each variable. Conversely, if the significance value (2-tailed) is greater than 0.05, there is no significant difference between the pretest and posttest variables. This suggests that there is no meaningful impact due to the difference in treatment applied to each variable [3]. The following are the results obtained from the paired sample t-test using SPSS:

n = number of respondents

N = population size

e = percentage of sampling

The total population in this study is 150 students. Therefore, a sampling error percentage of 10% is used, and the percentage results are rounded for accuracy. The calculation is as follows:

$$n = \frac{150}{1 + 150 (0,1)^2}$$

Table 1. T-test (Paired sample t-test)

	Mean	N	Std Dev.	Std.error mean
Pretest	60.93	60	12.541	1.619
Posttest	77.17	60	12.697	1.639

The Paired Samples Statistics table presents several descriptive values for each variable in the paired sample. The pretest values have a mean of 60.93 based on 60 data samples. The data dispersion, indicated by the standard deviation, is 12.541, with a standard error of 1.619. In contrast, the posttest values have a mean of 77.17 from 60 data samples. The data dispersion for the posttest is shown by a standard deviation of 12.697 and a standard error of 1.639. This indicates that the posttest results are higher compared to the pretest results.

Table 2. Paired Samples

	N	Correlation	Sig.
Pretest & Posttest	60	12.541	.000

The Paired Samples Correlations table indicates a correlation coefficient of 0.875, which reflects the relationship between the two variables in the paired sample.

Table 3. Paired Samples Correlations

	Mean	Std. dev	Std.error	t
Pretest - Posttest	-16.233	6.320	.000	-19.895

Table 4. Paired Samples test

	Df	Sig. (2-tailed)
Pretest - Posttest	59	.000

In the Paired Samples test table above, the significance value is 0.000 ($p < 0.05$), indicating a significant change in the pretest and posttest scores. The following are the statistical hypotheses:

$H_0 : \mu_1 = \mu_2$ (There is no significant difference of the blended learning method on the learning outcomes of PJOK (Physical Education, Sports, and Health) students in grade 10 at SMAN 1 Gamping.)

$H_a : \mu_1 \neq \mu_2$ (The blended learning method has a significant difference on the learning outcomes of PJOK (Physical Education, Sports, and Health) students in Grade 10 at SMAN 1 Gamping.)

The basis for decision-making is the comparison of the calculated t-value with the critical t-value from the t-table:

1. If the calculated t-value $>$ the critical t-value from the t-table, then the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.
2. If the calculated t-value $<$ the critical t-value from the t-table, then the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_a) is rejected.

Based on the t-test table (paired sample t-test) above, there is a significant difference between the conditions before and after the implementation of the blended learning method. The reference for determining the critical t-value is the degrees of freedom (df), which is calculated as $N-1$, where N is the sample size. In this case, $df = 60 - 1 = 59$. For a significance level of 5%, the critical t-value is 1.67109. According to the results of the paired sample t-test, the calculated t-value is -19.895. The negative t-value indicates that the mean pretest score is lower than the mean posttest score.

On the learning outcomes of PJOK (Physical Education, Sports, and Health) at SMAN 1 Gamping. The basis for determining the level of significance (P Value) is as follows: If the significance value (2-tailed) is greater than 0.05, the null hypothesis (H_0) is accepted. If the significance value (2-tailed) is less than 0.05, the alternative hypothesis (H_a) is accepted.

As previously explained, the significance value (2-tailed) in Table 10 is 0.000. Based on this, it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted because the significance value of 0.000 is less than 0.05. This means that the hypothesis indicating a difference in the PJOK (Physical Education,

Sports, and Health) learning outcomes before and after the implementation of the blended learning method is supported.

1. Effect Size Test [4]

Effect size aims to measure the magnitude of the impact of the blended learning method on the learning outcomes of PJOK (Physical Education, Sports, and Health) at SMAN 1 Gamping. The indicator used to measure the extent of the impact is the effect size, which quantifies the effect of one variable on another. This value is obtained using coefficient calculations. To determine the effect size, the following formula is used:

$$d = \frac{M_{\text{posttest}} - M_{\text{pretest}}}{SD_{\text{pooled}}}$$

Information:

d = effect size
 M posttest. = posttest average value
 M pretest = pretest average value
 SD pooled = Pooled Standard of deviation

With the following calculation results:

It was found that the calculated t-value is greater than the critical t-value, specifically $19.895 > 1.67109$, and the significance value (2-tailed) is 0.000, which is less than 0.05. Therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. Thus, it can be concluded that the blended learning method has a significant effect.

$d = \frac{M_{\text{posttest}} - M_{\text{pretest}}}{SD_{\text{pooled}}}$	0.00 – 0.20	<i>Weakeffect</i>
$d = \frac{16.233}{6.320}$	0.21 – 0.50	<i>Modesteffect</i>
$d = 2.57$	0.51 – 1.00	<i>Moderateeffect</i>
	>1.00	<i>Strongeffect</i>
	(Cohen et al, 2007. p.521)	

Based on the calculations above, the effect size test yielded a result of 2.57, with an interpretation of a value > 1.00 categorized as a strong effect. Therefore, it can be concluded that the influence of the blended learning method on PJOK learning outcomes at SMAN 1 Gamping is significant.

To determine the percentage of improvement after the treatment, a percentage calculation using the following formula [5] was employed =

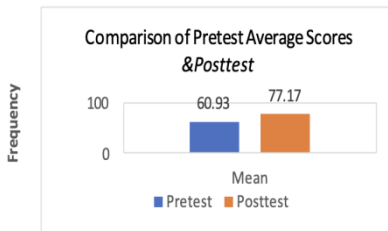
$$= \frac{16.233}{60.93} \times 100\% = \frac{\text{Mean difference}}{\text{Mean Pretest}} \times 100\%$$

$$= 26,6 \%$$

4 Discussion

This study aims to determine the impact of the blended learning method on PJOK learning outcomes at SMAN 1 Gamping. The t-test results indicate that the calculated t-value is 19.895, which is greater than the critical value of 1.67109, with a significance probability of 0.000, which is less than 0.05. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. This means that there is a significant impact of the blended learning method on PJOK learning outcomes at SMAN 1 Gamping.

Based on the mean difference of 16.233 and a pretest mean of 60.93, it is evident that the blended learning method has resulted in a 26.6% improvement in PJOK learning outcomes compared to before the implementation of the blended learning method. The following diagram presents a comparison of the pretest and posttest results based on the average scores:



Picture 1. Comparison of Pretest Average Scores & Posttest

5 Conclusion

The research on the impact of the blended learning method on PJOK learning outcomes for Grade 10 students at SMAN 1 Gamping, Sleman, indicates a significant improvement. The t-test results show that the calculated t-value of 19.895 is greater than the critical t-value of 1.67109, demonstrating a significant impact on PJOK learning outcomes after the implementation of the blended learning method. The effect size calculation of 2.57 falls into the category of a strong effect, indicating that the impact of the blended learning method at SMAN 1 Gamping is substantial, with a 26.6% increase in learning outcomes.

With the availability of internet facilities, computers, and adequate access speed, teachers should begin to develop innovations and implement blended learning as an effort to improve the quality of teaching and learning, both in theory and practice. In practice, it is preferable for students to learn skills during face-to-face sessions, while theoretical concepts can be studied using online media or e-learning platforms. Observations during the research indicate that the use of monotonous theoretical approaches often results in suboptimal practical performance. Since PJOK education requires proficiency in both skills and theory, blended learning can help address this issue. Students should actively utilize internet facilities to access knowledge from various references, such as videos, articles, and PowerPoint presentations, without waiting for explanations from the teacher.

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