THE EFFECTIVENESS OF BLENDED LEARNING ON LEARNING MOTIVATION AND STUDENT LEARNING OUTCOMES

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Abstract

The effectiveness of blended learning at SMK Negeri 1 Kinali on student learning outcomes and motivation. This study was able to determine the following: a) Knowing the variations in learning motivation and learning outcomes between students taught in blended learning and students taught in traditional classes; b) knowing the increase in learning motivation and student learning outcomes due to the use of mixed learning. It is a quasi-experiment to do this kind of study. 64 randomly selected students form the study population. Data collection techniques include written exams and surveys. Parametric statistics were utilized to examine and test the data (F-test and t-test). These are the research's results. a) Between students who study mixed learning and students who study conventional learning, there are differences in learning outcomes with sig. 0.000 with an average of 13.38 and a difference in learning motivation with sig. 0.012 with an average of 4.75. b) Employing blended learning improves student learning outcomes with a sig. 0.000 average increase of 38.22 and enhances student learning motivation by an average of 13.56.

1. Introduction

As the entity responsible for implementing education in Indonesia, the Ministry of Education and Culture welcomes the progress of ICT by introducing a new curriculum for its adoption, especially at the vocational secondary education level, which is in line with the strategic objectives of developing related vocational secondary education. With the strategic plan of the Ministry of Education and Culture, which calls for equitable and high-quality vocational secondary education that is accessible and affordable in all provinces, districts and cities (Ismaniati, 2015)

Efforts to achieve the goal of at least 70% of SMKs by using e-learning, e-management, and e-services are one of the general strategies of the Directorate of Vocational Development in 2011 based on the evaluation results of program implementation, 2010 and the draft strategic plan for the Directorate of Vocational Development for 2010-2014. This response shows that the Ministry of Education and Culture is very concerned about the development of information and technology. To prepare students for life after graduation, the policy aims to provide them with the necessary skills to recognize, understand and handle information and communication technologies.

Based on interviews with teachers majoring in TKJ at SMK Negeri 1 Kinali, that there are still many students who do not achieve a minimum of 75 mastery learning, the average student only achieves 70 completeness. Based on the survey, it was found that there was still a lack of student preparation when

starting productive lessons in class, this caused the learning process to be delayed because students deliberately wasted time getting into class. In addition to learning mastery which is still low, student motivation and learning outcomes are also still low.

Behavioristic learning psychology has had a significant influence on curriculum technology. The stimulus-response theory highlighted by Sanjaya (2010: 76), which focuses on mechanical behavior patterns is one aspect of this learning theory. The curriculum also displays the following learning-related characteristics: (a) learning is seen as a process of responding to stimuli; and (b) learning is structured in a series of steps with various tasks to be learned. Most of the time, students study alone, but sometimes they may also work in groups.

Table 1. Productive Value of TKJ Class XI TKJ 1 Odd Semester 2022/2023 Academic Year

Score	Numbers of Student	The Percentage of Completeness Without Remedial process
> 69	18	56%
< 69	15	46%
Total	33	100%

Source: Recap of Class XI TKJ 1 Teacher Values at SMK Negeri 1 Kinali Odd Semester 2022/2023 Academic Year

The purpose of curriculum technology, according to McNeil cited by Sanjaya (2010: 76), is to produce observable behavior changes. As a result, broad goals have changed to focused goals. Usually, these goals are taken from each course (discipline). Rarely are goals based on community goals used. The learning objectives that have been set must be truly understood by every student.

The use of computers as learning tools can take various forms, according to Sanjaya (2011: 219), including: (a) the use of multimedia presentations, especially multimedia presentations to teach theoretical topics used in traditional large group learning. The ability to combine all elements, including text, video, animation, photos, graphics and sound, is an advantage. b) Interactive multimedia, especially interactive CDs, can be used in various academic environments and at various grade levels. The nature of this media is not only interactive but also multimedia, with complete sound, animation, video, text and graphics and other media elements; c) Utilization of the Internet, namely the use of the Internet as a learning tool that allows students to study independently. Online libraries, museums, databases, and primary materials are available to students. Because students can conduct subject-related research, complete homework assignments, and take tests via online computer networks, neither students nor teachers need to be physically present in class.

Originally, classes aimed at integrating face-to-face instruction with online instruction were referred to as "blended learning". In addition to blended learning, hybrid learning and other similar phrases are often used. All the terms mentioned above-mischage, blend, or combination of learning-have the same meaning (Mihai & Christova, 2011).

Thorne (2003:2) defines blended learning as a technique for fusing the technological and creative advancements provided by online learning with the involvement and engagement provided by traditional learning. Blended learning, on the other hand, is described by Bersin (2004:56) as the blending of multiple training media (technology, activities, and types of events) to create the optimal training program for a certain target audience. Blended learning refers to adding additional forms of electronic training to conventional instructor-led training. The blended learning programs discussed in this book use a number of different e-learning formats, perhaps augmented by instructor-led training and other hands-on formats (Dakhi et al., 2020).

This opinion supports the concept of blended learning which combines elements of traditional learning with an electronic learning environment. Blended learning combines elements of online learning such as learning using the web, video streaming, synchronous and asynchronous audio communication, and

offline learning (Dakhi et al., 2022; Zebua & Harefa, 2022). A Learning Management System (LMS) is needed to oversee the process of integrating e-learning into the e-learning model. Often, LMS is also referred to as CMS (Course Management System) (Heinze, 2008). Typically, CMS are web-based, operate on a web server, and can be accessed by users using a web browser (web client). Participants can connect to the server, which is usually placed at a college, school or other organization, from any location with an internet connection.

According to Ambiyar's research (2020), students can be self-motivated (internally). Students are more motivated and have a greater internal drive to excel in their studies. Highly motivated students try to work on and complete the tasks given by their teacher. Students can compete with their peers or try to learn as much as possible on their own. Students ask the teacher and consult with their peers if they have questions about the concepts covered in the course material and assignments. As an internal force, teachers can also inspire their students. Teachers can provide instructions, exercises, and explanations to students to help them develop their skills. Different learning models can be used by teachers to make lessons more interesting and increase student motivation. It has been proven that using the PjBL approach can make students more motivated to learn.

Motivation is described by psychologists as an internal mechanism that initiates, regulates and maintains behavior over time. Simply put, motivation is what drives you forward, sustains you along the way, and directs your efforts (Slavin, 2009:105).

Learning outcomes are skills that people acquire after going through the learning process. These skills can lead to changes in student behavior, knowledge, understanding, attitudes, and talents so that they become better than before. As Hilgard said, quoted by Sanjaya (2010: 228–229).

Hilgard said that learning is a process of change through exercises or activities carried out either in a controlled environment or in nature. Sanjaya's (2010) argument that learning outcomes are the process of a person's mental activity interacting with the environment to bring about beneficial behavioral changes, both in terms of knowledge, attitudes, and psychomotor aspects supports this view. It is said to be positive because the changed behavior adds to previously observed patterns, which tend to be stable (permanent and not easily forgotten).

Based on the explanation above, it can be concluded that learning outcomes are the final assessment of procedures and introductions that are repeatedly carried out, stored for a long time, or even learning outcomes help individual development. personality that wants to produce better results can change mindsets and produce better work pattern behavior.

According to a study by Ambiyar with the title, "...the differences in student learning independence during the pandemic at SMAN 1 Lembah Melintang and SMAN 1 Lembah Gumanti", student learning independence for indicators of Self-Efficacy, Self-Concept, and Self-Abilities can be seen from learning attitudes students, such as feeling unsure about successfully completing challenging math assignments, confident that they will do well on math tests, and not confident to offer At SMAN 1 Lembah Melintang the achievement of independence on indicators of Self-Efficacy, self-concept, and self-ability of 67.29 which is included in the strong criteria. At SMAN 1 Lembah Gumanti, the achievement of independence on the Self-Efficacy/Self-Concept/Self-Abilities indicator is 67.54 which is included in the strong standard. The indicators of self-efficacy, self-concept, and self-reliance in both schools show the same criteria, namely the strong criterion.

This study aims to: (1) identify differences in learning motivation of students taught in blended learning compared to students taught in conventional education; (2) identify differences in the learning outcomes of students who are taught in blended learning compared to students who are taught in conventional education; and (3) identify an increase in student motivation with the application of blended learning.

2. Research Method

This study uses a quasi-experimental methodology and is included in the quantitative research category. Pretest-Posttest Non Equivalent Control Group Design is the method used. The focus of this study was on 64 class XI students who were proficient in computer and network engineering skills. There were two classes in this study, namely class XI TKJ 1 totaling 32 students, and class XI TKJ 2 totaling 32 students. According to Wiersma (1995: 284), a little piece of paper with the names of each class was utilized as a sketch sheet to choose the experimental class and the control class in this (group) inquiry rather than random assignment. The control class and experimental class are chosen at random. Class XI TKJ 1 is an experimental class with 32 students, while class XI TKJ 2 is the control class with the same number of students. The second class must come from a homogenous population, according to the pre-test homogeneity results. Experimental variables and the dependent variable are the two variables used in this study. The experimental variables include the treatment variables for the experimental class (LMS-based learning) and the control class (traditional learning) which act as comparisons. Learning outcomes and learning motivation is the dependent variable.

Questionnaires and written tests were administered to students in both classes before and after the intervention as a study approach to collecting data. The validity of the instruments in this study also includes the validity of rational judgment, namely discussions with experts-in this case supervisors and other qualified lecturers-about the instruments produced. The next stage is testing the instrument in the field to maintain its construct validity after being consulted and determined to meet the standards. Factor analysis was used to verify the validity of the concept after data collection and tabulation.

Data analysis involved many steps: (1) assessing the analysis requirements with the normality test using the Kolmogorov-Smirnov method for homogeneity test, and (2) testing the research hypothesis for hypotheses 1 and 2 with the F anova test for hypotheses 3 and 4 with sample t-test in pairs. According to Sugiyono, (2013: 257) the following is the Kolmogorov-Smirnov formula:

$$KD : 1{,}36 \; \frac{\sqrt{n_1 + n_2}}{n_1 n_2}$$

Information :

KD = number of Kolmogorov-Smirnov sought
n1 = number of samples obtained
n2 = expected number of samples

If the significant value is greater than 0.05 at (P> 0.05) the data can be said to be normal. On the other hand, if the significant value is less than 0.05 at (P<0.05), the data is said to be abnormal.

3. Results and Discussion

Based on the findings of hypothesis 1 and a significance level of 0.05, it is known that students in blended learning and traditional classes have different levels of motivation to learn, with a calculated F value of 6.755 higher than the F table value of 4.001 and a significance level (P) of 0.012 lower than () 0.05.

The overall value of the experimental class' learning motivation is 13.65. The average value of the control class' learning motivation was 8.82. Compared to learning motivation before learning, learning motivation after learning usually scores higher. The experimental class and the control class had an average increase in learning motivation of 4.75.
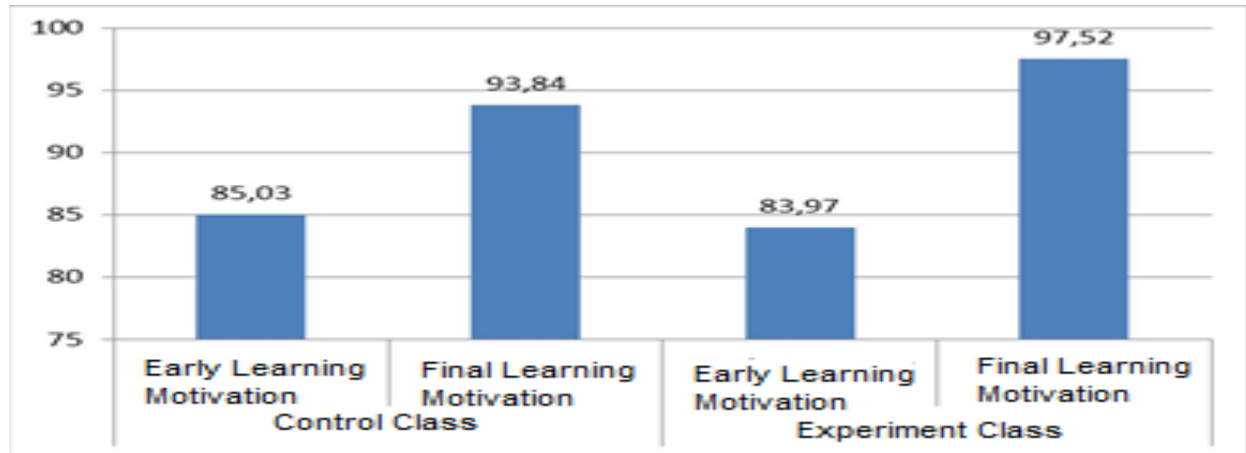
Figure 1. Differences in Average Early and Late Learning Motivation in Both Classes

There is a difference in learning outcomes between students who are taught blended learning and students who are taught in conventional education, in accordance with the findings of hypothesis 2, with a calculated F value of 26.240 greater than the F table value of 4.001 and a significance level (P) of 0.000 () 0, 05.

The average value of the learning outcomes in the experimental class is greater after learning than it was before learning. The difference in the experimental class's average score was 38.23, whereas the difference in the control class' average score was 24.84. The average learning outcome score increased by 13.39 points between the experimental class and the control class. The average growth score of learning outcomes for the experimental class and the control class are different, as shown in the accompanying graph.
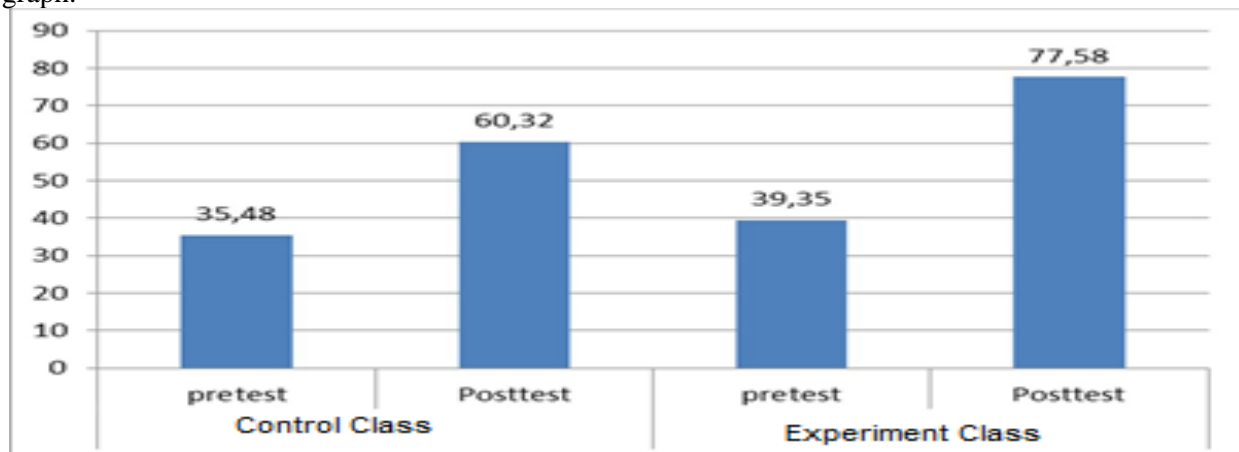

Figure 2. Differences in average learning outcomes before and after learning in the experimental class and the control class

Based on the findings of hypothesis 3 and a significance level of 0.05, it was found that the application of blended learning increased students' learning motivation. With an error rate of 5% and a significance level (P) of 0.000 (0.05), the t-table value of -1.697 is greater than the t-count value of -9.406 which is smaller.

Before the introduction of blended learning, the average learning motivation score was 83.97. Learning motivation was reassessed after five blended learning sessions that had been completed by the

participants. As a result, there was an average increase of 13.55 and an average desire to learn 97.52. The average increase in learning motivation is illustrated in the following graph.
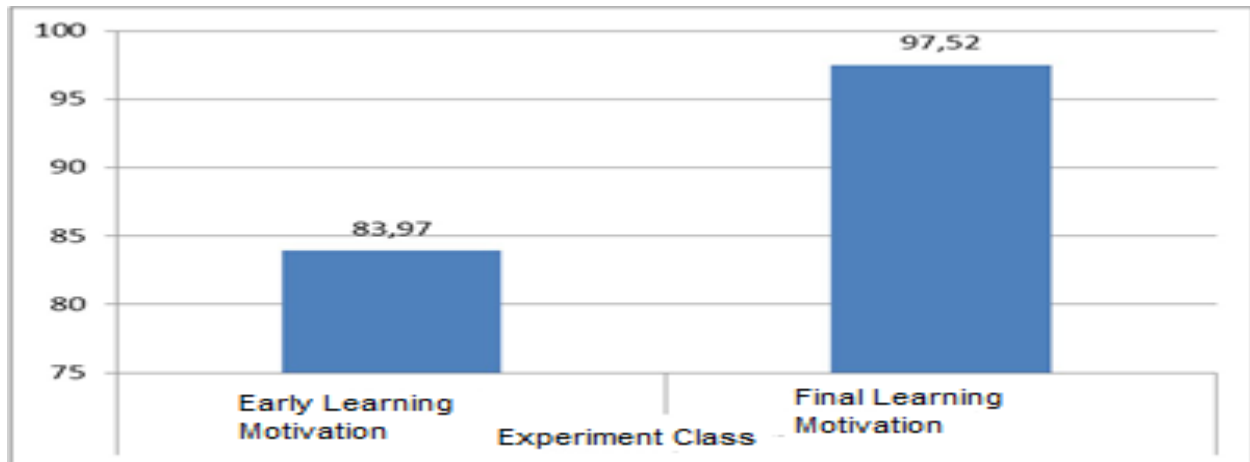

Figure 3. Average Learning Motivation Before and After Using Blended Learning

Based on the findings of hypothesis 4 and a significance level of 0.05 it is known that the use of blended learning improves student learning outcomes, with a tcount value of -19.628 which is smaller than a t table value of -1.697, an error rate of 5%, and a significance level (P) of 0.000 ( ) 0.05.

Prior to blended learning, the average learning outcome was assessed at 39.35. Learning outcomes were reassessed after the participants completed five blended learning sessions, and the results showed an increase from an average initial learning outcome of 38.23 to an average learning outcome of 77.58. The following figure provides an overview of the typical improvement in learning outcomes.
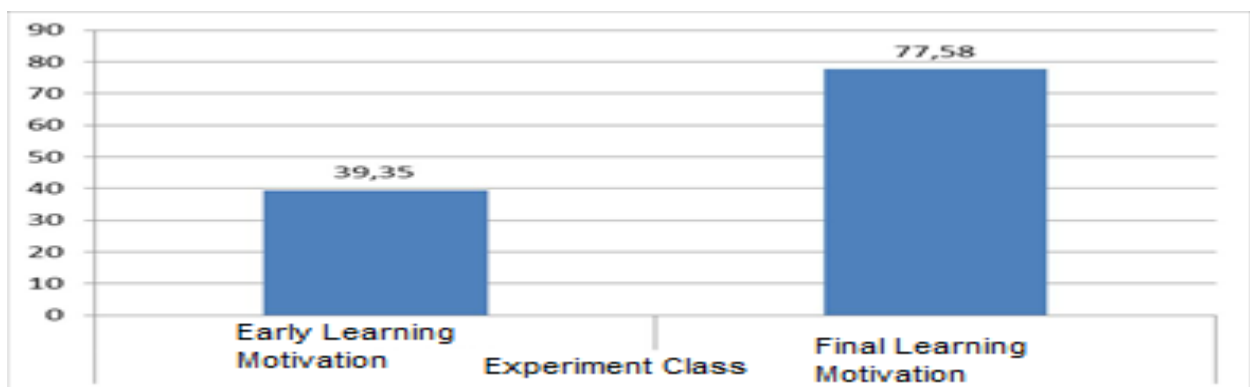

Figure 4. Average Learning Outcomes Before and After Using Blended Learning

4. Conclusions

The discussion that has been described can be used to reach the following conclusions: students who are taught through blended learning and students who are taught through conventional learning achieve different learning outcomes; the use of blended learning results in an increase in student learning motivation.

Reference

[1] Ismaniati, C., Sungkono, S., & Wahyuningsih, D. (2015). The blended learning model to increase learning independence and attractiveness in lectures. *Journal of Education Science Research, 8*(2), 210-221.

[2] Sanjaya, W. (2010). *Curriculum and learning: Theory and Practice of Curriculum Development at The Education Unit Level (KTSP)*. Jakarta: Kencana Prenada Media Group.

[3] Sanjaya, W. (2011). *Planning and Design of Learning Systems*. Jakarta: Kencana Prenada Media Group.

[4] Mihai, A., & Christova, A. (2011). Teaching european studies: A blended learning approach. Institute for european studies (IES)-Vrije Universiteit Brussel (VUB). belgium. *International journal of emerging technologies in learning (iJET), 6*(4), 101-119.

[5] Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning.* London: Kogan Page Publishers.

[6] Bersin, J. (2004). *The blended learning book: Best practices, proven methodologies, and lessons learned*. San Francisco: Pfeiffer Publishing.

[7] Dakhi, O., Jama, J., Irfan, D., Ambiyar, Ishak. (2020). Blended Learning: A 21st Century Learning Model At College. *International Journal Of Multi Science, 1*(8), 50-65.

[8] Dakhi, O., Irfan, D., Jama, J., Ambiyar, A., Simatupang, W., Sukardi, S., & Zagoto, M. M. (2022). Blended learning And Its Implications For Learning Outcomes Computer And Basic Networks For Vocational High School Students In The Era Of COVID-19 Pandemic. *International Journal of Health Sciences, 6*(S4). https://doi.org/10.53730/ijhs.v6nS4.10976

[9] Zebua, E., & Harefa, A. T. (2022). Penerapan Model Pembelajaran Blended learning Dalam Meningkatkan Minat Belajar Siswa. *Educativo: Jurnal Pendidikan, 1*(1), 251–262. https://doi.org/10.56248/educativo.v1i1.35

[10] Heinze, A. (2008). *Blended learning: An interpretive action research study*. PhD Thesis, unpublished, University of Salford, Manchester.

[11] Ambiyar, A., Aziz, I., & Melisa, M. (2020). Differences in Student Learning Independence During the Pandemic at SMAN 1 Lembah Melintang and SMAN 1 Lembah Gumanti. *Journal of Scholars: Journal of Mathematics Education, 4*(2), 1246-1258.

[12] Slavin, R. E. (2009). *Educational psychology theory and practice, eighth edition, second volume. (Translated by Marianto Samosir)*. Jakarta: PT Index (Original book published in 2006)

[13] Wiersma, W. (1995). *Research methods in education: An introduction (6th ed.)*. Boston: Allyn and Bacon.

[14[Sugiyono. (2011). *Statistics for research*. Bandung: Alfabeta.