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# The Using Effect of Blended Learning on Students' Persistence and Learning Outcomes

Salma Samputri[1*], Hamidah Suryani[2]

[1] Mathematic and Science Faculty, Universitas Negeri Makassar, Makassar, Indonesia
[2] Engineering Faculty, Universitas Negeri Makassar, Indonesia.

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Corresponding Author:
Salma Samputri
salmasamputri@unm.ac.id

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**Abstract:** This study aims to determine how the using effect of blended learning on students' persistence and learning outcomes. This type of research is experiment. The independent variable is blended learning while the dependent variables are students' persistence and learning outcomes. The population is all year seven students of SMPN 1 Kalukku Maumuju Regency of West Sulawesi province which is consists of 146 students divided into five study groups. The sampling technique is random sampling technique to get two study groups where one of them was choosen as the control class and the other class as the experimental class. The data collection techniques used instruments and interverential test. Data analysis techniques are descriptive and inverential analysis. Based on the students' persistence data, the value of $t_{calculated} = 2.391304 > t_{table} = 1.67303$. It was same result with students' learning ourcomes where and $t_{calculated} = 7.297297$ is bigger than $t_{table} = 1.67303$ for student learning outcomes. It can be concluded that blended learnig provides more positive results than conventional learning in terms of students' persistence and learning outcomes.

**Keywords:** Blended Learning; Students' Persistence; Students' Learning Ourcomes

## Introduction

In this modern era, many developments are taking place in all aspects of life including in the education sector. Education is the one of the most important factors in shaping the civilization. Education will bring about changes and new discoveries in the field of science and technology. The development of science and technology must be supported by qualified human resources. Quality human resources will be the main focus to compete and be wise in managing natural resources. In connection with this, formal education is one of the vehicles. Various efforts have been made by the government to improve the quality of education, among others, by curriculum development, increasing the competence of educators, procurement of books and teaching aids, educational facilities and improved school management which is certainly expected to support the learning process.

The effort especially in the education field is to utilize technological developments in the classroom learning process (Arsita & Astawan, 2022). Utilization of technological developments is commonly referred to as E-learning (Gupta & Gupta, 2020). In the context of E-learning, one of the emerging trends and interesting to develop is blended learning (Sudatha et al., 2019). Blended learning is generally understood as a learning process that combines face-to-face and online-based learning. This learning method is considered the right method to learn. It is also providing an introduction to students about the use of technology that can be used during the learning process (Widyasari, 2022).

The application of Blended learning includes various applications with various bases such as

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computerbased learning, webbased learning, virtual classroom and so on. This allows a change in the teaching styles and learning process because the learning is more flexible both in terms of material delivery and learning time used (Al-Ihwanah, 2016). The flexibility makes students gotten opportunity to learn anywhere, anytime, and under any circumstances (Hurlock, 1978). One application that is often used lately in online-based learning is Edmodo. Edmodo is an application that is universal and can be used both on handphone, laptop or PC devices. The use of blended learning is expected to improve students' performance in the learning process both from the students' cognitive aspect or psychological aspects (Allen, 2016).

## Method

The type of this research is a quasi-experiment. The research design was a non-equivalent control group design. The population is all year seven students of SMPN 1 Kalukku consisting of 146 students and divided into five study groups. The sampling technique was random sampling which is a sampling technique from a random population. Sampling was done by randomly selecting 2 classes that were choosen as control class and experimental class. The experimental class is year seven B class and the control class is year seven D class. Both selected classes were taught with different learning methods where the experimental class was taught with blended learning and control class was taught with conventional learning. The research was conducted in the scope of SMPN 1 Kalukku, mamuju regency, West Sulawesi province. The instrument used in this study is a questionnaire of learning persistence of students measured using a licter scale and learning outcomes test consisting of multiple-choice questions as many as 30 numbers and each has been checked for validity by an expert validator.

The study is carried out in several procedures. The steps were begun with observations to the location of the school. It was continued by conducting initial analysis with direct observation and questioning the school community about the condition of the school. Furthermore, the research process in the form of application of learning systems to be studied, and the last step is to evaluate all the processes that have been done. Furthermore, the data collected in the analysis using statistical analysis. Data analysis techniques used in this study are descriptive statistical analysis and inferential statistical analysis. the final step is to draw conclusions based on the results of statistical analysis.

## Result and Discussion

The statistical analysis result of students' persistence in year seven of SMP Negeri 1 Kalukku before and after being taught using the method of blended learning and taught using conventional models obtained pretest and posttest scores in experimental class and control class on ecosystem subject matter can be seen in Table 1.

**Table 1.** The Result of Students' Persistence Statistical Analysis

| Variables | Control Class | | Experimental Class | |
|---|---|---|---|---|
| | Pretest | Posttest | Pretest | Posttest |
| The Amount of sample | 30 | 30 | 27 | 27 |
| Maximal Score | 150 | 150 | 150 | 150 |
| Minimal Score | 30 | 30 | 30 | 30 |
| Highest Score | 131 | 147 | 145 | 148 |
| Lowest Score | 98 | 121 | 102 | 130 |
| Average | 113.67 | 136.06 | 119.26 | 142.22 |
| Standard Deviation | 8.56 | 6.65 | 11.67 | 4.63 |
| Variance | 73.26 | 44.34 | 136.12 | 21.49 |

From these data, it's known that the average value of control class students before being treated was 113.67 and after being treated changed to 136.06. The highest score before treatment was 131 and the lowest score was 98. The highest value obtained is 147 and the lowest value is 121 after being treated. The standard deviation of the data before treatment was 8.65 and after treatment changed to 6.65. The variance value of the obtained data changes initially 73.26 to 44.34.

There was a change in the value before and after treatment in the experimental class. The average value of students in the experimental class before being treated was 119.26 and after being treated changed to 142.22. The highest score obtained in the initial experimental class was 145 and after being given a 148. While for the

lowest value before treatment is 102 and after treatment is 130. The standard deviation of the data before treatment was 11.67 and after treatment changed to 4.63. The variance value of the obtained data changes from 136.12 to 21.49.

The statistical analysis result of students' science learning outcomes before and after being taught using the blended learning method and conventional models obtained pretest and posttest scores in experimental class and control class on ecosystem subject matter can be seen in Table 2.

**Table 2.** The Result of Students' Learning Outcomes Statistical Data Analysis

| Variables | Control Class | | Experimental Class | |
|---|---|---|---|---|
| | Pretest | Posttest | Pretest | Posttest |
| The Amount of sample | 30 | 30 | 27 | 27 |
| Maximal Score | 30 | 30 | 30 | 30 |
| Minimal Score | 0 | 0 | 0 | 0 |
| Highest Score | 18 | 27 | 25 | 28 |
| Lowest Score | 7 | 23 | 5 | 23 |
| Average | 13.20 | 21.10 | 13.78 | 25.85 |
| Standard Deviation | 2.93 | 3.06 | 4.36 | 1.87 |
| The amount of sample | 8.57 | 9.40 | 19.03 | 3.52 |

From these data, it's known that the average value of control class students before being treated was 13.20 and after being treated changed to 21.10. The highest score before treatment was 18 and the lowest score was 7. The highest value obtained is 27 and the lowest value is 23 after being treated. The standard deviation of the data before treatment was 2.93 and after treatment changed to 3.06. The variance value of the data obtained changes from 8.57 to 9.40.

There was a change in the value before and after treatment in the experimental class. The average value of students in the experimental class before being treated was 13.78 and after being treated changed to 28.85. The highest score obtained in the initial experimental class was 25 and after being treated became 28 while the lowest value before treatment is 5 and after treatment is 23. The standard deviation of the data before treatment was 4.36 and after treatment changed to 1.87. The variance value of the obtained data changes from 19.03 to 3.52. The N-gain test can be done to determine the increase in persistence and learning outcomes of science students after the pretest and posttest values obtained from both classes of research can be seen in Table 3.

**Table 3.** N-Gain Test to know the Students' Persistance Improvent

| Class | Score | | The Average | |
|---|---|---|---|---|
| | Pretest | Posttest | N-Gain | Category |
| Control | 113.70 | 136.10 | 0.60 | Medium |
| Experiment | 119.30 | 142.20 | 0.71 | High |

Based on the data in the table above, it can be seen that the average N-gain of learning persistence score for experimental class students is in the high category with an average N-gain score of 0.71 and N-gain learning persistence score of students in the control class is in the medium category with an average N-gain score of 0.60. The comparison of the average score of N-gain students' learning persistancefor both classes can be seen in Figure 1.

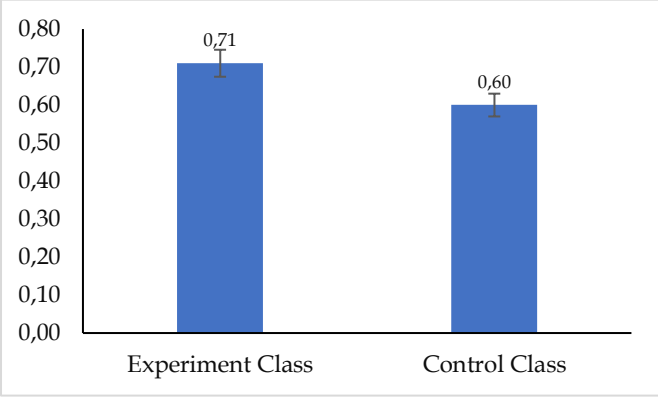


**Figure 1.** The Comparison of Students' Persistance N-Gain Score

The results of students' N-gain learning outcomes analysis can be seen in Table 4.

**Table 4.** N-Gain Test to know Students' Sciencetific Learning Outcomes

| Class | Score | | The Average | |
|---|---|---|---|---|
| | Pretest | Posttest | Pretest | Posttest |
| Control | 13.20 | 21.10 | 0.46 | Sedang |
| Experiment | 13.78 | 25.85 | 0.73 | Tinggi |

The Table 4 shows that the N-gain score of learning outcomes of students in the experimental class category is included in the high category with an N-Gain score of 0.73. Meanwhile, the N-gain score of students ' learning outcomes in the control class was included in the medium category with an N-Gain score of 0.46. Comparison of the average score of N-gain learning

outcomes of students in experimental and control classes can be seen in Figure 2.

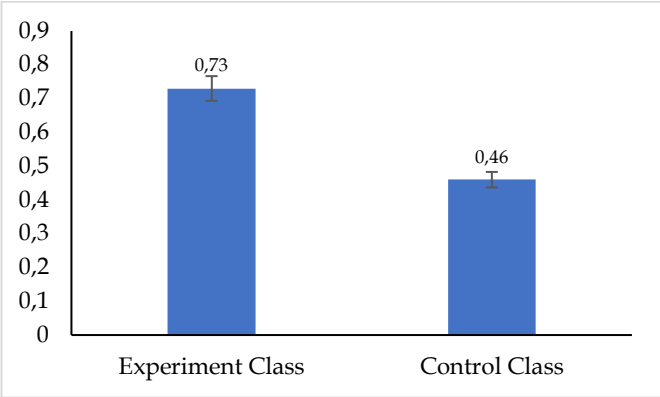


**Figure 2.** The Comparison of Students' Learning Outcomes N-Gain Score

The prerequisite test must be performed first before the inferensial analysis wasdone, this prerequisite test consists of two types of tests. There are normality test and homogeneity test. The normality test aims to analyze whether the data obtained is normally distributed or not while the homogeneity test is used to analyze whether the samples used in the study are homogeneous or not. Normality test is done by Chi-squared test method and homogeneity test is used F-test by testing the value of N-Gain. Next, a hypothesis test was conducted using the t test. This t test is done using a test criterion. The test criteria are that if $t_{calculated}$ is bigger than $t_{table}$ at a significant level $\propto = 0.05$ then $H_0$ is rejected and $H_1$ is accepted but if $t_{calculated}$ is smaller than $t_{table}$ at a significant level $\propto = 0.05$ then $H_0$ is accepted and $H_1$ is rejected. The obtained analysis results of the learning persistence is $t_{calculated} = 2.391304$ wheras $t_{table}$ is 1.67303. This means that $H_0$ is rejected and $H_1$ is accepted. It can be concluded that the method of blended learning has a positive effect on students' learning persistence. It also happened to students' learning outcomes that $t_{calculated} = 7.297297$ $t_{table} = 1.67303$. $H_0$ is rejected and $H_1$ is accepted. It also can be concluded that the method of blended learning has a positive effect on the students' learning outcomes of students.

The obtained data shows that the students' learning persistence in experimental class is higher than the students' learning persistence in control class. The variety of learning methods that are carried out causes an improvement in students' learning desire. This is happened because the students are interested and feel happy with the learning methods that was applied in the class. The students are feel interested in learning methods that utilize technology in the learning process so they will be more eager to learn that applied blended learning method (Osman & Hamzah, 2020).

The above statement can be proven by observing the learning process carried out with blended learning (Yulianti & Sulistiyawati, 2020). This learning process makes the students more active in following the learning process. Learning that is flexible both in terms of time or the process makes students feel happier in learning. The learning process is done by combining two learning processes, namely face-to-face learning and online learning process. It makes the students more enjoy the learning process. The main reason why this method makes students happied is the varied learning media. The learning media uses multimedia which includes audio and visual media where students can combine knowledge received through various sources with class teacher explanations. These makes the received knowledge increased and became more complex (Angelysca & Kusnadi, 2024). In addition, the flexibility of time also makes students freer to learn because the material that has been learned can be accessed anytime and anywhere.

In terms of descriptive statistical analysis, there is a significant difference between the students' learning persistance who are taught using blended learning with students' learning persistance who are taught with conventional learning. Students' learning persistance who are taught with blended learning is in the high category. This is influenced by the increase in learning activities as a result of the learning process carried out. The increase in learning activities happened because students feel happier when using information technology in the learning process. It refers to the learning method with cybernetics systems that are considered very helpful to increase learning activities and students' motivation. Based on this, blended learnig which is a learning method with a cybernetics system is considered very helpful in improving learning activities and motivation of students.

On the other hand, the students' learning persistance who are taught with conventional learning is in the medium category. This is happened because the learning process carried out in the control class is a learning method that is often used. It caused students' tendency to feel saturated with the learning methods used. Students are more interested in the learning method of blended learning because it makes them not feel bored. This is because blended learning utilizes technology to spur the activeness of students in learning (Utami et al., 2023). The N-gain score was in the high category in the experimental class. This is due to the increased motivation and willingness to succeed in students. It increases in motivation due to the fact that students do not feel bored during the learning process. Students are not only asked to record the material and listen to teachers' explanation but also given the freedom to access the material through electronic devices so that

the scope of the material that can be learned is much wider. In addition, learning in the experimental class also allows for communication in a longer time because the learning process not only occurs in the classroom, but also occurs in social networks through electronic devices. This makes students interact more often with each other. It also caused social relationships between students are much better and students can motivate each other.

The N-gain score was in the medium category the control class. This is due to the lack of students' motivation and willingness to succeed. This happens because most students will feel bored with the monotonous way of learning and tend to be boring. The learning process that only emphasizes the students to record the material and listen to the teachers' explanation makes students feel bored because of the lack of variety of methods in the learning process. In addition, learning time is also very limited because it only uses learning time in class during school hours. It causes a lack of opportunity for students to communicate and motivate each other. This is in line with what was expressed by Heath (2023) and Maulana et al. (2022) who stated that the tendency of the monotonous learning process centered on the teacher (teaching center) will only make students feel less comfortable in learning and this is what makes students not passionate and less motivated to learn.

From the description above, it can be concluded that the analysis of the experimental class learning persistence indicator is higher than the analysis of the control class learning persistence indicator. This is in accordance with the research of Martin (2015) which states that online-based learning can foster intrinsic and extrinsic motivation of students which can increase persistence in learning activities. Motivation in the learning process has an important role, namely as a driving force that will realize a behavior in order to achieve the goals set (Abednego et al., 2023; Bosch, 2017). Utami & Amaliyah (2022) added that motivation is a psychological condition that encourages a person to do something. In the field of motivational education, of course, oriented to the achievement of psychological conditions that encourage a person to learn. Based on the results of research that has been done on the subject matter of ecosystems shows that there are differences in learning outcomes of students who are taught using the method of blended learning with learning outcomes of students who are taught by conventional learning methods. This difference is the result of the different treatment of the two groups of students who were taught by two different methods. In the group of students who studied with the method of blended learning obtain better learning outcomes than the group of students who studied with conventional learning.

The above is due to learning by using technological means to train and familiarize students to search for information widely without any restrictions on the source of the specified material and in addition also train students to work together, share knowledge, experience, tasks, and responsibilities not only in the classroom learning period but at any time they can learn together through online systems. This can make it easier for students to build knowledge and understanding of difficult concepts.

Learning outcomes can increase along with the increase in learning activities of students (Pamungkas & Halimah, 2021). It is because there is a close relationship between activities and learning outcomes to be achieved. In the use of blended learning, the learning process is more centered on students (student center) so this method is claimed to be able to increase the learning outcomes of students through increased learning activities (Dakhi et al., 2020; Rafiola et al., 2020; Suryani et al., 2021). Learning scenarios that make students actively seek material not only through printed books but also through various other sources such as the internet or discussions between peers. This makes the growth of social ties between the students so that the students feel more comfortable in learning. In addition to these factors, another factor that is considered capable of influencing the learning outcomes of students is the learning time factor. In the use of blended learning, students' learning time becomes more flexible because in addition to learning in the classroom during school time, the learning process can also be done outside the classroom and outside school time, which makes students free to learn anywhere and anytime.

In terms of descriptive statistical analysis, the learning outcomes of experimental classes taught using the method of blended learning are classified as high category and for control classes taught using conventional learning models are classified as medium category (Ashraf et al., 2021; Hadiyanto et al., 2021). This shows that there are significant differences between classes taught with blended learning and classes taught with conventional learning methods. In the experimental class, students have a more flexible learning time so that it can affect their learning outcomes. This is because the learning time used is not limited to school hours, but also outside school hours so that learning time becomes more and more flexible. Another factor that affects the learning outcomes of students in the experimental class is relatively high compared to the control class because of the activity and interaction between students through cooperation in groups to motivate each other and help each other in mastering the subject matter in order to achieve maximum achievement, without prejudice to the role of educators. In addition, the ease of obtaining learning

materials is also influential to improve the learning outcomes of students because it makes it easier to find the information you want to know. In the control class, students ' learning outcomes were only at a moderate level. This is due to the lack of motivation to study. This is because most students will feel bored with the monotonous way of learning. The learning process that is a teacher center only emphasizes the students to record the material and listen to the explanation of the teacher makes students feel bored because of the lack of variety of methods in the learning process. In addition, Limited Learning time also leads to a lack of opportunities for students to communicate with each other and motivate each other. This is in line with what was expressed by Panjaitan et al. (2021) which states that the monotonous learning process centered on the teacher (teaching center) will make students feel not free to learn and this is what makes students not passionate and less motivated to learn. The results of inferential analysis using T-test obtained score $t_{Count}$ higher than the score $t_{table}$, this means that $H_0$ rejected and $H_1$ accepted. So, it can be concluded that the method of blended learning has a positive effect on the learning outcomes of students in Class VII of SMP Negeri 1 Kalukku on ecosystem materials. This is in accordance with research Ullah & Anwar (2020) shows that information technology-based learning can improve learning outcomes of students.

## Conclusion

Based on the description in the discussion of the research results above, the authors can conclude as follows the learning persistence of students who are taught with blended learning is high, students' learning persistancewho are taught by conventional learning is classified as moderate, the learning outcomes of students who are taught with blended learning are high, the learning outcomes of students who are taught with conventional learning are classified as moderate, students' learning persistancewho learned with blended learning is higher than the persistence of students who learned with conventional learning, and the learning outcomes of students who learned with blended learning were higher than the persistence of students who learned with conventional learning.

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The authors declare no conflict of interest.

## References

Abednego, A., Nuniary, S., Rumahlewang, E., & Batlolona, J. R. (2023). The Correlation between Student Perception and Learning Motivation: Blended Learning Strategy. *AL-ISHLAH: Jurnal Pendidikan*, *15*(2), 1338–1346. https://doi.org/10.35445/alishlah.v15i2.3850

Al-Ihwanah, A. I. (2016). Implementasi E-Learning Dalam Kegiatan Pembelajaran Pgmi Iain Sulthan Thaha Saifuddin Jambi. *Cakrawala: Jurnal Studi Islam*, *11*(1), 76–91. https://doi.org/10.31603/cakrawala.v11i1.102

Allen, M. W. (2016). *Michael Allen's guide to e-learning: Building interactive, fun, and effective learning programs for any company*. John Wiley & Sons.

Angelysca, R., & Kusnadi, K. (2024). Android-Based Interactive Multimedia Development For Students Of Sma Negeri 1 Kikim Selatan. *International Journal of Multicultural and Multireligious Understanding*, *11*(2), 67–74. https://doi.org/10.18415/ijmmu.v11i2.5436

Arsita, G., & Astawan, I. G. (2022). Improving Student Learning Outcomes in Online Learning by Using Electronic Teaching Materials. *Journal for Lesson and Learning Studieis*, *5*(2), 199–209. https://doi.org/10.23887/jlls.v5i2.48067

Ashraf, M. A., Tsegay, S. M., & Meijia, Y. (2021). Blended learning for diverse classrooms: Qualitative experimental study with in-service teachers. *Sage Open*, *11*(3), 21582440211030624. https://doi.org/10.1177/21582440211030623

Bosch, C. (2017). *Promoting self-directed learning through the implementation of cooperative learning in a higher education blended learning environment* [North-West University (South Africa), Potchefstroom Campus]. Retrieved from https://repository.nwu.ac.za/handle/10394/26102

Dakhi, O., JAMA, J., IRFAN, D., & others. (2020). Blended learning: a 21st century learning model at college. *International Journal Of Multi Science*, *1*(08), 50–65. Retrieved from https://multisciencejournal.com/index.php/ijm/article/view/92

Gupta, S. B., & Gupta, M. (2020). Technology and E-learning in higher education. *Technology*, *29*(4), 1320–1325. Retrieved from https://shorturl.asia/AfSVg

Hadiyanto, H., Failasofah, F., Armiwati, A., Abrar, M., & Thabran, Y. (2021). Students' practices of 21st century skills between conventional learning and blended learning. *Journal of University Teaching & Learning Practice*, *18*(3), 7. https://doi.org/10.53761/1.18.3.7

Heath, J. (2023). *The Process of Transitioning from Teacher-Centered Learning to Student-Centered Learning* [Valdosta State University]. Retrieved from https://shorturl.asia/uJ1U6

Hurlock, E. B. (1978). *Child Development*. McGraw-Hill.

Martin, A. (2015). Effects of Course Interactivity on Learner Persistence, Motivation and Student Achievement in Online Courses. *EdMedia+ Innovate Learning*, 1094–1100. Retrieved from https://www.learntechlib.org/p/151381/

Maulana, I., Harahap, R. D., & Safitri, I. (2022). Use of learning media through technology for biology education students. *BIO-INOVED: Jurnal Biologi-Inovasi Pendidikan*, *4*(3), 282–290. https://doi.org/10.20527/bino.v4i3.13418

Osman, N., & Hamzah, M. I. (2020). Impact of implementing blended Learning on students' interest and motivation. *Universal Journal of Educational Research*, *8*(4), 1483–1490. https://doi.org/10.13189/ujer.2020.080442

Pamungkas, A. S., & Halimah, N. (2021). Increasing Interest and Learning Outcomes of Elementary School Students in Style Material Through Blended Learning. *At-Tasyrih: Jurnal Pendidikan dan Hukum Islam*, *7*(1), 62–76. https://doi.org/10.55849/attasyrih.v7i1.150

Panjaitan, R., Murniarti, E., & Sihotang, H. (2021). Learning plan with blended learning in elemetary school. *Advances in Social Sciences Research Journal*, *8*(2), 558–573. Retrieved from http://repository.uki.ac.id/7957/

Rafiola, R., Setyosari, P., Radjah, C., & Ramli, M. (2020). The effect of learning motivation, self-efficacy, and blended learning on students' achievement in the industrial revolution 4.0. *International Journal of Emerging Technologies in Learning (IJET)*, *15*(8), 71–82. Retrieved from https://www.learntechlib.org/p/217073/.

Sudatha, I. G. W., Jampel, I. N., & Tegeh, I. M. (2019). Utilization of E-Learning on Instruction in The Junior High School. *International Conference on Technology and Educational Science*, 175–179. Retrieved from https://series.gci.or.id/article/46/1/icestech-2019

Suryani, Y., Ningrum, A. R., Hidayah, N., & Dewi, N. R. (2021). The effectiveness of blended learning-based scaffolding strategy assisted by google classroom toward the learning outcomes and students' self-efficacy. *Journal of Physics: Conference Series*, *1796*(1), 12031. https://doi.org/10.1088/1742-6596/1796/1/012031

Ullah, A., & Anwar, S. (2020). The effective use of information technology and interactive activities to improve learner engagement. *Education Sciences*, *10*(12), 349. https://doi.org/10.3390/educsci10120349

Utami, A. M., & Amaliyah, N. (2022). The Effect of Blended Learning Model Assisted Video Animation to the Motivation and Learning Outcomes of Science. *Jurnal Penelitian Pendidikan IPA*, *8*(3), 1416–1424. https://doi.org/10.29303/jppipa.v8i3.1675

Utami, K., Akhyar, M., & Sudiyanto, S. (2023). Potential implementation of android-based interactive multimedia for student learning activities. *Al-Ishlah: Jurnal Pendidikan*, *15*(1), 507–518. https://doi.org/10.35445/alishlah.v15i1.2641

Widyasari, A. (2022). The Effect of Interaction Between Students on Learning Outcomes in Grade 5 Elementary School Students. *Proceeding International Conference on Religion, Science and Education*, *1*, 413–418. Retrieved from https://sunankalijaga.org/prosiding/index.php/icrse/article/view/816

Yulianti, T., & Sulistiyawati, A. (2020). The blended learning for student's character building. *International Conference on Progressive Education (ICOPE 2019)*, 56–60. https://doi.org/10.2991/assehr.k.200323.089