

Increasing Student Learning Enthusiasm Through Multimedia-Based Learning

Abu Anwar¹, Samsi Hasan², Elin Haerani³

¹ Universitas Islam Negeri Sultan Syarif Kasim, Pekanbaru, Indonesia ; abu.anwar@uin-suska.ac.id

² Universitas Islam Negeri Sultan Syarif Kasim, Pekanbaru, Indonesia ; samsi.hasan@uin-suska.ac.id

³ Universitas Islam Negeri Sultan Syarif Kasim, Pekanbaru, Indonesia; elin.haerani@uin-suska.ac.id

ARTICLE INFO

Keywords:

Applications;
Multimedia;
Teaching Tools;
Ulumul Qur'an

Article history:

Received 2021-08-14

Revised 2021-11-12

Accepted 2022-01-17

ABSTRACT

A teaching device is a medium that can be used to convey material from a teacher to students. The delivery of material designed in the form of multimedia aims to make it easier for students to understand the material both in the form of desktop and web-based applications. A common problem faced by students is that there are still many who have not achieved satisfactory learning achievement. With the existing limitations, learning tools that support learning achievement are absolutely necessary. This research focuses on increasing student enthusiasm for learning in the Ulumul Quran course. Learning activities with multimedia-based applications aim to increase students' enthusiasm for learning, so that the material is absorbed more quickly and students are not bored. Initial observations included a literature review and interviews to identify class issues for lesson analysis and possible remedies. In developing the solution, the problem is identified based on course material, class schedule, student characteristics, class atmosphere, learning methods/approaches, process assessment, and learning outcomes. Then analyse data and demands and design a multimedia-based e-learning system. The conclusion of this study states that students are able to increase their enthusiasm for learning the subject 'Ulumul Qur'an. There is an increase in student enthusiasm for learning with multimedia-based learning. This can be seen in the average N-Gain value obtained 0.466. The significant value obtained from the calculation results is smaller than the significant level $\alpha = 0.05$ ($0.000 < 0.05$) than H_0 , which states that there is no difference in the enthusiasm for learning of students who study.

This is an open-access article under the [CC BY-NC-SA](https://creativecommons.org/licenses/by-nc-sa/4.0/) license.



Corresponding Author:

Abu Anwar

Universitas Islam Negeri Sultan Syarif Kasim, Pekanbaru, Indonesia; abu.anwar@uin-suska.ac.id

1. INTRODUCTION

A teaching device is a medium that can be used to convey material from a teacher to students (Pernanda, Agni Zaus, Wulansari, & Islami, 2018). The teaching and learning process cannot be separated from the help of tools (media) or a learning method that uses multimedia-based teaching device applications (Manshur & Husni, 2020) (Dwyer, 1993). The delivery of multimedia material designed to

make it easier for students to understand the material in the form of desktop and web-based applications (Samsinar, 2019) (Lilis Suryani, Putra, & Aisyah, 2022). In Klimova's 2012 research on "Multimedia in the Teaching of Foreign Languages", it is stated that multimedia has a great impact on the whole society because currently multimedia is used in various industrial fields (eg engineering or medicine) and is used as a general reference tool (eg encyclopedia) (Klimova, 2012) (Hidayat, Islami, & Edya, 2020). Multimedia has great potential for the learning process, multimedia is also widely used in teaching foreign languages (Syawaludin, 2019).

Multimedia is the use of computer devices to display and combine text, images, sound and videos accompanied by links and tools that allow users to control, interact, create something, and communicate. While the media is a place where information can move or flow (Darudianto, Agustini, Yanti, & Sujanto, 2010)(Lei et al., 2017). The right combination of media elements consisting of images, animation, sound, video and information in a multimedia project will be able to become a means of delivery and dissemination of information very effective, because the combination of these elements will produce something beautiful, harmonious and interesting so as to attract more attention from its users (Dwiqi, Sudatha, & Sukmana, 2020).

The development of the world of information technology has developed rapidly and has also penetrated the world of education (Ambron & Hooper, n.d.). This development is also supported by the availability of hardware and software, namely the use of computers (Djamas, 2020). Computers have been used as a teaching tool in education. Information technology is a technology that is developing rapidly at this time (Lepper, 2021). With advances in information technology, access to available data or information can take place quickly, efficiently and accurately (Dwiqi et al., 2020). An example of the results of advances in information technology is the development of an Internet network that allows all human beings around the world to use the data available/connected in the network together so that multimedia-based learning is absolutely necessary to support student learning outcomes (Samsinar, 2019).

A common problem faced by students is that there are still many who have not achieved satisfactory learning achievement. With the existing limitations, learning tools that support learning achievement are absolutely necessary (Niegemann & Heidig, 2012). These devices certainly should not be seen as a substitute for face-to-face interaction, but at least provide an opportunity for educators to develop learning techniques so as to produce maximum learning outcomes (Bailer, Doeller, Granitzer, & Klamma, 2008). Conversely, multimedia is expected to make it easier for students to absorb information quickly and efficiently (Widayat, Kasmui, & Sukaesih, 2014)(Spector, Merrill, Elen, & Bishop, 2014). Sources of information are no longer focused solely on the text of the book but are broader than that (Argaw, 2017). The ability of multimedia technology that is getting better and developing will trigger enthusiasm for learning and increase the ease of obtaining student knowledge (Chen, Zou, Xie, & Wang, 2021). The development of the world of information technology has developed so rapidly and has also penetrated into the world of education (Wang, B. Kinzie, McGuire, & Pan, 2010). This development is also supported by the availability of hardware and software, namely the use of computers. Computers have been used as a teaching tool in education (Fadieny & Fauzi, 2021).

The anticipated outcomes suggest that students will experience a heightened level of passion towards their academic pursuit of the 'Ulumul Qur'an course, facilitated by the utilisation of multimedia applications (Wale & Bishaw, 2020)(Mishra & Reddi, 2003). Students possess this ability in conjunction with the lecturer's endeavours to enhance their cognitive abilities, bolster self-assurance, cultivate a heightened motivation for learning, foster a positive attitude towards the subjects being taught, improve their efficacy in managing study time effectively, and enhance their self-discipline through the provision of instructional materials, thereby ensuring that the teaching and learning process remains engaging and dynamic (Agnew & Kellerman, 2008). The design of this action research focused on increasing students' enthusiasm for learning in the Ulumul Qur'an course at the university. Therefore, the problem can be formulated: Can the enthusiasm for student learning in the Ulumul Qur'an Course in Higher Education be increased by using Multimedia-Based Learning Applications?

2. METHODS

In the preparatory stage, preliminary observations were carried out through literature study and interviews to identify problems in the class that would be used to carry out lesson study and planning alternative solutions. Identification of the problem in the framework of planning the solution relates to the subject matter (course material) that is relevant to the class and class schedule, student characteristics, class atmosphere, learning methods/approaches, process assessment, and learning outcomes. Then, carry out the stages of analyzing data and needs and designing an e-learning system that is carried out using multimedia-based learning media tools.

After the analysis and design of an appropriate e-learning system has been completed, the next stage is the implementation of Ulumul Qur'an learning. The implementation of this learning is the application of multimedia-based learning of the Ulumul Qur'an course with reference to the stages of presenting teaching material that has been described in the Lecture Implementation Plan. Methodological steps can be seen in chart 1 below:

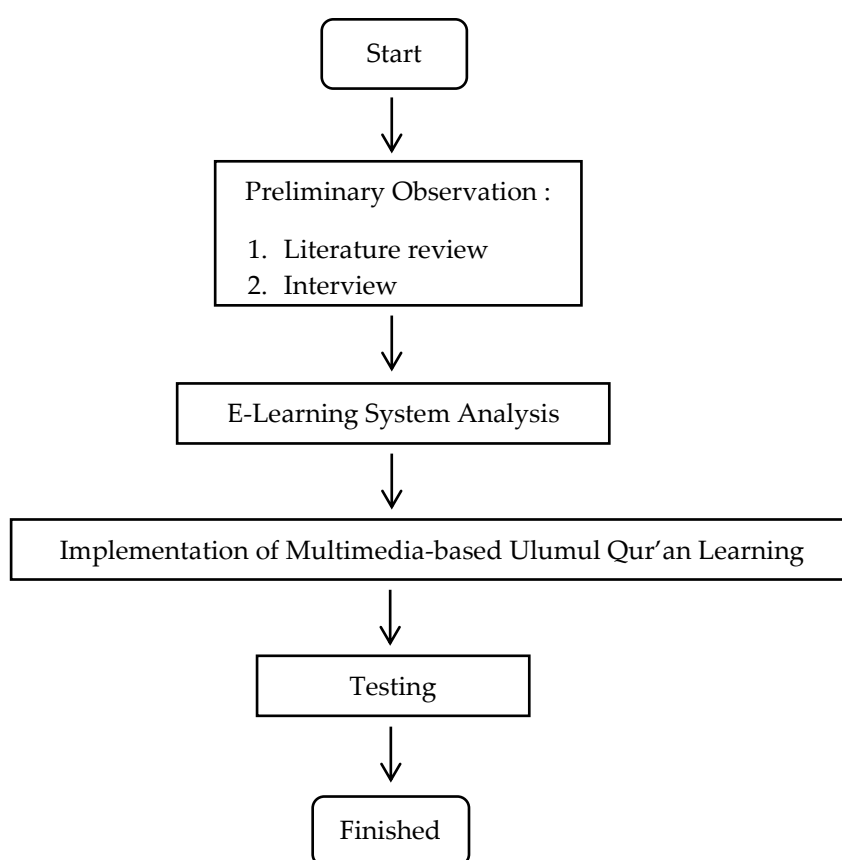


Figure 1. Research Methodology Chart

3. FINDINGS AND DISCUSSION

This chapter presents the results of research which include increasing student enthusiasm for the Ulumul Qur'an subject using multimedia-based learning applications in tertiary institutions, differences in student learning enthusiasm using multimedia-based learning applications and conventional learning. The use of media in the learning process is very important, and this is because learning media is a teacher's tool in conveying learning material to students. In selecting learning media, teachers need to pay attention to the suitability of learning media with the characteristics of learning materials and student characteristics (Darmawan, Reffiane, & Baedowi, 2019; Yuanta, 2019). One of the researchers stated that multimedia can increase student enthusiasm and create fun learning

(Sari, 2022). It is hoped that this multimedia will make it easier to provide variations in the delivery of material through innovative learning media that are relevant to student needs so that they are able to motivate students to learn, think critically, and be creative. Furthermore, the researcher presents the results of the research that has been done, as follows:

The effectiveness of the learning model will be difficult to measure from the learning process because there are many things that need to be observed. The most likely way to do this is to measure the increase in the extent to which targets are achieved from the start before treatment (initial ability test) to the target learning outcomes after being given treatment (post-test). The target to be achieved is of course 100% of the material mastered by students, and at least has reached KKM (Minimum Completeness Criteria). To test this effectiveness, manual calculations are used, namely the N-Gain effectiveness formula. The normalized gain test (N-Gain) was carried out to determine the increase in student learning enthusiasm between the experimental class and the control class. The data used is based on pretest and posttest values. N-Gain is calculated with the help of the Microsoft Excel program by dividing the difference between the final semester exam scores and the semester exam scores by the difference between the ideal score and the pretest score. A summary of the test results is presented in Table I below:

Table 1. N-Gain Test

Student	Pre-test	Post-test	Pos-Pre	Ideal Score	Ideal-pre	N-Gain	Category
K-1	68	90	22	120	52	0.423	Currently
K-2	54	95	31	120	56	0.554	Currently
K-3	77	91	14	120	43	0.326	Currently
K-4	70	96	26	120	50	0.520	Currently
K-5	75	96	21	120	45	0.467	Currently
K-6	68	93	25	120	52	0.481	Currently
K-7	72	94	22	120	48	0.458	Currently
K-8	66	97	31	120	54	0.574	Currently
K-9	63	86	23	120	57	0.404	Currently
K-10	70	89	19	120	50	0.380	Currently
K-11	71	96	25	120	49	0.510	Currently
K-12	73	91	18	120	47	0.383	Currently
K-13	67	103	36	120	53	0.679	Currently
K-14	67	86	19	120	53	0.358	Currently
K-15	66	91	25	120	54	0.463	Currently
K-16	67	90	23	120	53	0.434	Currently
K-17	68	85	17	120	52	0.327	Currently
K-18	72	94	22	120	48	0.458	Currently
K-19	68	82	14	120	52	0.269	Currently
K-20	64	91	27	120	56	0.482	Currently
K-21	64	103	39	120	56	0.696	Currently
K-22	67	98	31	120	53	0.585	Currently
K-23	60	97	37	120	60	0.617	Currently
K-24	69	92	23	120	51	0.451	Currently
K-25	75	91	16	120	45	0.356	Currently
Average						0.466	Currently

Table 1 shows that the results of calculating the N-Gain value for increasing student enthusiasm for learning in Ulumul Qur'an courses using multimedia-based learning applications in tertiary

institutions are 0.466. The N-gain test analysis illustrated in table 1 shows that increasing student learning enthusiasm in the Ulumul Qur'a course is said to be effective, the score obtained is significant $n\text{-gain} > 0.3$ with moderate criteria. Thus it can be concluded that there is an increase in student learning interest in the Ulumul Qur'an course by using multimedia-based learning applications in tertiary institutions.

Pretest and posttest scores were processed using the Kolomorov-Smirnov test using the SPSS version 18.0 for windows. The results of the normality test for the full pretest and posttest scores can be seen in the summary results in Table 2 below:

Table 2. Normality Test

		Pretest	Posttest
N		25	25
Normal Parameters ^{a,b}	Mean	68.44	92.68
	Std. Deviation	4.073	5.105
Most Extreme Differences	Absolute	.143	.109
	Positive	.143	.109
	Negative	-.082	-.100
Kolmogorov-Smirnov Z		.715	.545
Asymp. Sig. (2-tailed)		.686	.928

a. Test distribution is Normal.

b. Calculated from data.

From table 2, it can be seen that the significant values of the pretest and posttest groups were 0.686 and 0.928. This significant value is greater than the significant level $\alpha = 0.05$ so that H_a which states that students' enthusiasm for learning scores are normally distributed, is acceptable.

Homogeneity test is used to determine whether several population variants are the same or not. This test was carried out as a prerequisite in the independent sample t test and ANOVA analysis. The underlying assumption in the analysis of variance (Anova) is that the variance of the population is the same. The two-variance similarity test is used to test whether the distribution of the data is homogeneous or not, namely by comparing the two variances. If two or more groups of data have the same variance, then the homogeneity test does not need to be done again because the data is considered homogeneous (Usmadi, 2020). The homogeneity test that the researcher did was from the pre-test and post-test data. Then a variant homogeneity test was carried out on the data of the two classes, namely the pretest group and the posttest group by testing the largest variant compared to the smallest variant using table F. The summary results are presented in Table 3 below.

Table 3. Homogeneity Test

Uji Homogenitas
Test of Homogeneity of Variances

Nilai

Levene Statistic	df1	df2	Sig.
1.073	1	48	.305

From Table 3 above, the variance for the pretest and posttest groups obtained is greater than the significant level $\alpha = 0.05$ ($0.305 > 0.05$). Furthermore, it can be concluded that the variance is homogeneous. Because the two conditions have been fulfilled, then the data analysis can be continued with the "t" test using the Compare Mare Independent Samples Test statistic. The complete calculation results can be seen in table 4 below:

Table 4. Hypothesis Testing
Uji Tes "t"

Class	Difference	T count	df	T table	Sig.	Ho
Pretest	68,44 < 92,68	18.559	48	2,01	0,000	Reject
Posttest						

From Table 4 above, it can be seen that for aspects of student enthusiasm for learning, the calculation of the t value obtained is 18.559 with a significant value of 0.000, because the significant value obtained from the calculation results is smaller than the significant level $\alpha = 0.05$ ($0.000 < 0, 05$) then H_0 , which states that there is no difference in the learning enthusiasm of students whose learning uses multimedia-based learning applications and conventional learning, is rejected. This means that there is a difference in the enthusiasm for student learning between students whose learning uses multimedia-based and conventional learning applications after being given treatment.

The observation results also show an increase in student enthusiasm for learning when the learning process is carried out on a multimedia basis in the Ulumul Qur'an course. The following table describes the increase that occurred in students while studying in the Ulumul Qur'an course. For more details, see the following graph:

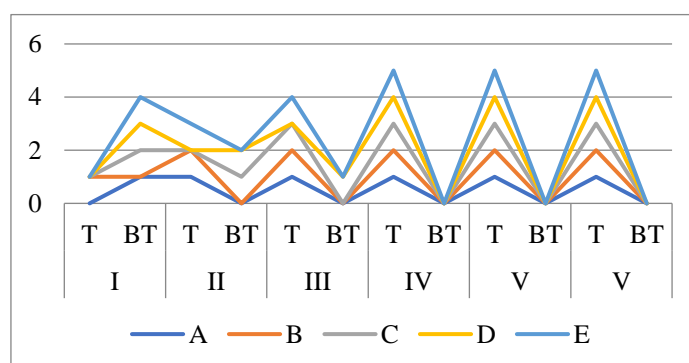


Figure 2. Students Improvement in the Ulumul Qur'an course

Information:

- Interaction between students and students (eg discussing or chatting)
- Interaction between students and lecturers (eg asking questions, answering questions, and so on)
- Interaction between students and media/learning resources/LKM (eg reading books, doing assignments, using experimental tools, and so on)
- Passive students (eg daydreaming, chin support, etc.) or playing games (pencil, ruler, finger, ballpoint, etc.)
- Students are silent because they think and pay attention (for example listening to lecturers' questions, paying attention to lecturers' explanations, paying attention to friends' questions or explanations, etc.)

The utilisation of multimedia learning has several advantages, including enhancing the engagement and interactivity of the learning experience, lowering the duration required for learning, enhancing the quality of student learning outcomes, and fostering student interest and motivation within the learning process. The student feedback about the incorporation of multimedia in Ulumul Quran education was predominantly positive. The demonstration of this phenomenon is evidenced by the study of pretest and posttest data pertaining to the utilisation of multimedia within the Good category. Hence, the use of multimedia in the context of Ulumul Quran education, with the aim of enhancing student engagement and motivation, is deemed as an appropriate approach to implement.

4. CONCLUSION

Based on the findings of the study, it can be inferred that there is a discernible augmentation in students' level of excitement towards the educational process while utilising multimedia-based learning methods. The average value of N-Gain found was 0.466, indicating the presence of this phenomenon. The acquired value of significance from the calculations is less than the predetermined significance level $\alpha = 0.05$ ($0.000 < 0.05$), therefore leading to the rejection of the null hypothesis (H_0) which posits that there is no discernible disparity in the level of enthusiasm between students who engage in multimedia-based learning apps and those who partake in conventional learning methods. This implies that there exists a disparity in the level of student engagement in the learning process when comparing those who utilise multimedia-based learning applications to those who engage in conventional learning methods, following the implementation of a specific intervention.

Based on the research's result, it is recommended that universities ensure sufficient internet connectivity facilities to facilitate the implementation of this learning approach, hence enabling effective learning practises. The effectiveness of the multimedia learning process is contingent upon the accessibility of internet connections. Consequently, any disruptions to internet network facilities can impede the learning process. Additionally, it is desirable for educators to possess a proficient understanding of various learning multimedia tools. This proficiency ensures that the utilisation of learning multimedia does not result in student disengagement or apathy. Furthermore, it is imperative to exercise careful discernment and tailor the choice of educational multimedia to align with the subject matter being taught. Additionally, students ought to be more diligent in leveraging multimedia resources to access information pertaining to a wider range of current topics. This approach is expected to foster heightened enthusiasm among students, thereby enhancing their engagement in the learning process, both within and beyond the confines of the educational institution.

REFERENCES

- Agnew, P. W., & Kellerman, A. S. (2008). Fundamentals of multimedia. In *Multimedia Technologies: Concepts, Methodologies, Tools, and Applications* (Vol. 1). <https://doi.org/10.4018/978-1-59904-953-3.ch001>
- Ambron, S., & Hooper, K. (n.d.). *INTERACTIVE Edited by*.
- Argaw, A. S. (2017). The effect of problem based learning (PBL) instruction on students' motivation and problem solving skills of physics. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(3), 857–871. <https://doi.org/10.12973/eurasia.2017.00647a>
- Bailer, W., Doeller, M., Granitzer, M., & Klammer, R. (2008). Encyclopedia of Multimedia. *Encyclopedia of Multimedia*, (January). <https://doi.org/10.1007/978-0-387-78414-4>
- Chen, X., Zou, D., Xie, H., & Wang, F. L. (2021). Past, present, and future of smart learning: a topic-based bibliometric analysis. *International Journal of Educational Technology in Higher Education*, 18(1). <https://doi.org/10.1186/s41239-020-00239-6>
- Darudianto, S., Agustini, H., Yanti, M. D., & Sujanto, D. (2010). Analisis dan Perancangan Aplikasi Perangkat Ajar Berbasis Multimedia dengan Studi Kasus : Mata Kuliah Analisa dan Perancangan Sistem Informasi. *Seminar Nasional Sistem Dan Informatika*, 227–233.
- Djamas, D. (2020). Development of interactive multimedia learning materials for improving critical thinking skills. *Research Anthology on Developing Critical Thinking Skills in Students*, pp. 507–525. <https://doi.org/10.4018/978-1-7998-3022-1.ch026>

- Dwiqui, G. C. S., Sudatha, I. G. W., & Sukmana, A. I. W. I. Y. (2020). Pengembangan Multimedia Pembelajaran Interaktif Mata Pelajaran IPA Untuk Siswa SD Kelas V. *Jurnal Edutech Undiksha*, 8(2), 33. <https://doi.org/10.23887/jeu.v8i2.28934>
- Dwyer, C. (1993). Multimedia in Education. In *Educational Media International* (Vol. 30). <https://doi.org/10.1080/0952398930300402>
- Fadieny, N., & Fauzi, A. (2021). Usefulness of E-module Based on Experiential Learning in Physics Learning. *International Journal of Progressive Sciences and Technologies*, 25(1), 410. <https://doi.org/10.52155/ijpsat.v25.1.2783>
- Hidayat, H., Islami, S., & Edya, F. (2020). *Developing an Entrepreneurship Module by Using Product-Based Learning Approach in Vocational Education a Asmar*. 12(5), 1097–1109.
- Klimova, B. F. (2012). The teaching of foreign languages. *Procedia - Social and Behavioral Sciences*, 31(2011), 202–206. <https://doi.org/10.1016/j.sbspro.2011.12.042>
- Lei, J. H., Guo, Y. J., Chen, Z., Qiu, Y. Y., Gong, G. Z., & He, Y. (2017). Problem/case-based learning with competition introduced in severe infection education: an exploratory study. *SpringerPlus*, 5(1). <https://doi.org/10.1186/s40064-016-3532-3>
- Lepper, M. R. (2021). Intrinsic motivation and instructional effectiveness in computer-based education. *Aptitude, Learning, and Instruction*, Vol. 3, pp. 255–286.
- Lilis Suryani, Putra, A. S., & Aisyah, N. (2022). THE RELATIONSHIP OF MULTIMEDIA, THE INTERNET TO THE DEVELOPMENT OF LEARNING FOR THE MILLENNIAL GENERATION. *Concept and Communication*, 2(2), 301–316. <https://doi.org/10.15797/concom.2019..23.009>
- Manshur, F. M., & Husni, H. (2020). Promoting Religious Moderation through Literary-based Learning: A Quasi-Experimental Study. *International Journal of Advanced Science and Technology*, 29(6), 5849–5855.
- Mishra, S., & Reddi, U. V. (2003). Educational Multimedia: A Handbook for Teacher- Developers. In *Commonwealth Educational Media Center for Asia*.
- Niegemann, H. M., & Heidig, S. (2012). Multimedia Learning. *Encyclopedia of the Sciences of Learning*, 41, 2372–2375. https://doi.org/10.1007/978-1-4419-1428-6_285
- Pernanda, D., Agni Zaus, M., Wulansari, R., & Islami, S. (2018). Effectiveness of Instructional Media Based on Interactive CD Learning on Basic Network at Vocational High School: Improving Student Cognitive Ability. *International Conferences on Education, Social Sciences and Technology*, 443–447. <https://doi.org/10.29210/2018163>
- Samsinar, S. (2019). Urgensi Learning Resources (Sumber Belajar). *Jurnal Kependidikan*, 13, 194–205.
- Sari, A. L. (2022). The Existence of Islamic Education in the Era of the Industrial Revolution 4 . 0 : Analysis of Education Policies in Indonesia. *Social Science*, 12.
- Spector, J. M., Merrill, M. D., Elen, J., & Bishop, M. J. (2014). Handbook of research on educational communications and technology: Fourth edition. *Handbook of Research on Educational Communications and Technology: Fourth Edition*, 1–1005. <https://doi.org/10.1007/978-1-4614-3185-5>
- Syawaludin, A. (2019). Development of augmented reality-based interactive multimedia to improve critical thinking skills in science learning. *International Journal of Instruction*, 12(4), 331–344. <https://doi.org/10.29333/iji.2019.12421a>
- Usmadi, U. (2020). Pengujian Persyaratan Analisis (Uji Homogenitas Dan Uji Normalitas). *Inovasi Pendidikan*, 7(1), 50–62. <https://doi.org/10.31869/ip.v7i1.2281>
- Wale, B. D., & Bishaw, K. S. (2020). Effects of using inquiry-based learning on EFL students' critical thinking skills. *Asian-Pacific Journal of Second and Foreign Language Education*, 5(1). <https://doi.org/10.1186/s40862-020-00090-2>
- Wang, F., B. Kinzie, M., McGuire, P., & Pan, E. (2010). Applying Technology to Inquiry-Based Learning in Early Childhood Education. *Early Childhood Education Journal*, 37, 381–389.
- Widayat, W., Kasmui, & Sukaesih, S. (2014). Pengembangan Multimedia Interaktif Sebagai Media Pembelajaran Ipa Terpadu Pada Tema Sistem Gerak Pada Manusia. *Unnes Science Education Journal*, 3(2), 535–541.