

Effectiveness of E-Learning Learning to Improve Student Learning Outcomes at Madrasah Aliyah

Farida Isroani

Universitas Nahdlatul Ulama Sunan Giri, Indonesia

Noornajihan Jaafar

Universitas Sains Islam Malaysia, Malaysia

Muflihaini

Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia

Abstract: E-learning is a new learning model carried out by the government to support student learning activities during a pandemic. This study uses a quantitative approach. Given the total number of students, more than 100 people, the researchers took a sample of 25% of the total population. In this research, systematic data collection uses an interview system to determine the use of e-learning-based learning models. The results of the study show that 1) the learning activities carried out by teachers through e-learning-based learning are still considered to be less than optimal, this is evidenced by the results of a questionnaire of 24.5% indicating that students' low interest in learning through the e-learning based model, 2) the calculation of the average value of student learning outcomes or the average value is 89.8. categorized as very good, 3) the results of the discussion that has been submitted show that there is no effect of e-learning-based learning on the learning outcomes of aqidah morals, the results obtained 0.221, where the significant value is smaller than the "r" table, both at the 5% level and at the 1% level.

Keywords: Effectiveness, E-learning, Learning Outcomes, Aqidah Morals

Introduction

The development of informatics technology in the era of globalization has been very rapid and has begun to penetrate various aspects of human life. Technological developments have a high impact on multiple aspects of life, ranging from the governance of the economy and even entering the realm of education and many other things. For example, in the education system, many have used information technology to teach learning to students. The availability of software or hardware supports this development. Along with the rapid growth

of information technology, the need for a concept and mechanism for teaching and learning based on information technology has become unavoidable in the world of education—the idea which became known as e-learning ([Pramod et al., 2022](#)). E-learning is an effective learning process that combines the digital delivery of material consisting of support and services in learning ([Gordon, Pink, Rosing, & Mizzi, 2022](#)). Using e-learning as a technology also requires a design to carry out learning effectively ([Yoong, Liao, Goh, & Zhang, 2022](#)). Achievement of educational goals if there is an increase in student learning outcomes. The purpose of the learning outcomes is a change in individual students after carrying out a series of lessons that the teacher has taught. In formal education, there is always a connection with the existence of measurement and assessment, as well as the teaching and learning activities process. Knowing the learning outcomes can assess the level of ability of innovative and less intelligent students. A teacher can use and master appropriate learning methods in teaching and learning activities to achieve learning goals. The correct method is compatible with materials, teacher readiness when teaching, and student readiness. The teacher has a significant role in intellectual maturity and spiritual and emotional learning. In the world of education, teachers are critical, namely as people responsible for educating students and for all their attitudes and behaviour ([Duong, 2022](#)).

According to Rie SM Lumenta, E-Learning can generally be divided into two big categories: static e-Learning and dynamic e-Learning. The most important thing needed in building an E-Learning system is the interaction between the user and the computer. E-Learning has the following philosophy: (1) E-Learning is the delivery of information on online communication, education, and training, (2) E-Learning provides a set of tools that can enrich the value of conventional learning so that it can answer the challenges of globalization development, (3) E-Learning does not replace conventional learning models in the classroom, but strengthens it through content enrichment and development of educational technology, (4) Capacity varies greatly depending on the form of content and the method of delivery ([Farthing et al., 2022](#)).

E-learning is a learning medium that utilizes electronic media as a tool in teaching and learning activities to improve student learning outcomes. E-learning can help teachers in teaching and learning activities because e-learning can be used at any time, even though class time is over ([Phipps et al., 2022](#)). E-learning can be used without a face-to-face meeting between the teacher and students. So if during the learning process there is a problem, for example, the teacher cannot attend because there are other activities, there are meetings services, students can still carry out the learning process, other examples such as lack of study hours at school students can continue learning at home. Schoology is one of several Learning Management System (LMS) which provides facilities for teachers and students to

interact with each other and exchange information online. With Schoology, it is expected that students can download subject matter, presentation slides, video tutorials, and games, do quizzes, exams, and discussions, and collect assignments given by the teacher. Schoology can also be used via a smartphone ([Al-Mamary, 2022](#)).

This paper will focus on student learning outcomes after using E-learning can be categorized as increasing, with ease of use and internet networks that support the learning process as well as quick assessments carried out by subject teachers when students have finished submitting their assignments by uploading them into Knowledge Competency or Skill Competency ([Sulaiman, Mahomed, Rahman, & Hassan, 2022](#)).

Research Method

The research method that will be used in this study is a survey method with a quantitative approach. The object in this study is Madrasah Aliyah Equity students ([Nguyen-Phuoc, Phuong Tran, Nguyen, Le, & Su, 2021](#)), where the variable measured 3P includes Presage, the process of contributing to learning outcomes ([Basco, Hair, Ringle, & Sarstedt, 2022](#)). By the proposed proposition, a statistical study suitable for a causal model (cause and effect) will be used, namely Partial Least Square (PLS-SEM) analysis, to overcome deviations from the normality assumption and adequacy of the sample ([Hair & Alamer, 2022](#)).

Population and Research Samples

In this study, the population was all Madrasah Aliyah Equity students. Based on respondents who returned the questionnaire, more than 100 respondents from the questionnaire were distributed so that the study sample consisted of only 90 students ([Kang & Shao, 2023](#)).

Method of collecting data

The data collection method used to obtain information and data is filling out a questionnaire, which is a method for collecting primary data using a set of questionnaires about variables measured through careful planning, arranged and packaged in such a way that the answers all questions can describe the state of the actual variable ([Mandhani, Nayak, & Parida, 2020](#)).

Data analysis method

This research uses Partial Least Square (PLS) as an analysis tool. In this case, each indicator treats students' e-learning experiences, learning processes, and learning outcomes as latent

variables (Kumar, Singh, & Jain, 2022). PLS is one method to carry out modelling using SmartPLS software. This PLS model is used when the basic theory of designing a weak model and measurement indicators does not meet the ideal measurement model. PLS can be used with several samples that are not large and can be applied at all data scales (Chuah, Tseng, Wu, & Cheng, 2021).

Result and Discussion

Based on the finding data in the fields about the effectiveness of E-learning in improving students learning outcomes at Madrasah Aliyah showed that:

1. Prerequisite Analysis Test

The analysis prerequisite test is a step to test the data obtained from the primary respondents so that they meet the requirements before proceeding to the hypothesis testing stage.

2. Normality test

The normality test is carried out to determine whether the residual values (existing differences) studied have a standard or abnormal distribution. Researchers used the Kolmogorov-Smirnov test to test the normality of each research variable. The normality test results are as follows:

Table 1 Normality Test Results One-Sample Kolmogorov-Smirnov Test

N		E-Learning Learning	Student achievement
		31	31
Normal Parameters, b	Means	26.48	60.13
	Std. Deviation	1930	8024
Most Extreme Differences	Absolute	.175	.139
	Positive	.169	.078
	Negative	-.175	-.139
Kolmogorov-Smirnov Z		.976	.773
asympt. Sig. (2-tailed)		.297	.589
a. Test distribution is Normal.			
b. Calculated from data.			

Based on the results above, it is known that the Sig value of variable X (E-Learning learning) of 0.297 and the variable Y (student learning achievement) of 0.589. This value is then compared with the critical value = 0.05. So, the Sig values of variables X and Y are more significant than the alpha values ($0.297 > 0.05$) and ($0.589 > 0.05$), so the data from these variables are normally distributed. Thus, it can be concluded that the two research variable

data, namely variable X (online learning with E-Learning and variable Y (student learning achievement) are typically distributed α .

3. Linearity test

The researcher carried out the linearity test to determine whether the independent and dependent variables had a linear relationship. The linearity test uses the Test for Linearity tool. The results of the linearity test are as follows:

Table 2 Linearity Test Results ANOVA

			Sum of Squares	df	Mean Square	F	Sig.
Student Achievement Online Learning E-Learning	Between Groups	(Combined)	765,227	8	95,653	1,804	.130
		Linearity	237,959	1	237,959	4,489	.046
		Deviation from Linearity	527,267	7	75,324	1,421	.247
	Within Groups		1166,257	22	53,012		
	Total		1931,484	30			

Based on the results of the linearity test above, it can be seen that the value of Sig. The linearity of the X variable (online e-learning learning) and the Y variable (student learning achievement) is 0.046. It is said that a variable has a linear relationship with other variables if its significance value is less than 0.05. From the results of the table above, it is known that the value of Sig. Between variable X and variable, Y is smaller than the alpha value of 0.046 < 0.05, so it can be concluded that variable X (E-Learning learning) and variable Y (student learning achievement) has a linear relationship. To prove the hypothesis in this study, researchers analyzed data from the two research variables through a simple linear regression analysis technique in which the calculations were assisted by the Statistical Product and Service Solution (SPSS) ver. 24 for windows. The t-test was conducted to determine the effect of the independent variables partially on the dependent variable and whether the effect is significant. The results of the t-test are shown in the table below.

Table 3 Test Results T Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	Q	Sig.
		B	std. Error	Betas		
1	(Constant)	100,879	19,043		5,297	.000
	Online Learning with Google Classroom	-1,539	.717	-.370	-2.145	.040

Result and Discussion

Definition of e-learning

E-learning is a new learning media device developed during the Covid-19 pandemic; this learning consists of hardware and software; these two devices are used in making learning websites on e-learning-based learning, while e-learning based. This learning can occur

because of the increasing development of technology, such as in three fields, for example, the field of distance learning, learning using computers, and the development of internet technology. Darin E. Hartley defines "e-learning as a type of teaching and learning that allows the delivery of student teaching materials using the internet or other computer network media." The understanding he describes is widely accepted by many people.

Meanwhile, Mary Daniels Brown and Dave Feasey argued that e-learning is a learning activity that utilizes networks, such as the internet, Local Area Networks (LAN) OR Wide Area Networks (WAN). Explaining that the use of a situation in a specific situation is highly recommended, as explained in the verse where Allah describes the situation experienced by the prophet David AS who reportedly made armour as a protector in war. Thus in Islam, it is recommended to create something valuable for other Muslims or for all humans that can be used to facilitate human work. The use of technology in the world of education must be directed to create an Islamic personality in students and master the learning of science and technology.

E-learning learning process

According to Gora, in e-learning, the main focus is on students. The atmosphere that exists in e-learning can help students be more independent and active in their learning because the students carry out the lesson plans. In this case, the teacher acts as a simulation of the material to be taught; then, students actively find material sources. Searching for information is unlimited because students may choose teaching materials according to their needs. The stages in e-learning base learning consist of the following:

a. Socialization of the Use of E-learning

The teacher gives directions to students regarding the procedures for using e-learning in subjects that the teacher or educator will deliver. The teacher provides materials and conveys assignments that students must complete later.

b. Use of E-learning-based learning

Students can access the e-learning web made by the teacher at home or anywhere to find the teaching materials and assignments that the teacher has submitted.

c. Assessment of E-learning Learning assignments

The application of e-learning learning that has been implemented will be assessed primarily on the delivery of assignments carried out by students.

Based on the description above, it can be concluded that the e-learning learning process starts with the teacher providing socialization and carrying out e-learning learning activities. Students are directed to enter the e-learning web that the school has prepared. The teacher

provides teaching materials for students to study. Finally, the teacher gives a test in the form of questions related to the material submitted to be assessed based on the test results that students have collected.

The advantages of e-learning learning

Lantrip Diet Prasajo revealed that there are four advantages of using e-learning-based learning, namely as follows:

- a. Personal experience in learning independent choices makes students try to move forward, choose their equipment and materials used for the delivery of teaching and learning, and try to collect materials as needed.
- b. Reducing costs institutions that organize learning activities on an e-learning basis can reduce travel and training costs, class-building training costs and reduce the time students spend going to school. Furthermore, development costs can be allocated to the availability of quotas which will later be distributed to students and educators as support for e-learning-based learning.
- c. Easy to achieve, users can easily access e-learning anywhere as long as they are connected to the internet.
- d. Responsible ability, level increase, testing, assessment, and validation, can be followed optimistically so that all students can be responsible for their respective obligations in the teaching and learning process.

Disadvantages of e-learning-based learning

In addition to having advantages, the e-learning learning model also has several disadvantages, including the following:

- a. Lack of interaction between educators and students.
- b. Students who have low learning motivation will be increasingly left behind.
- c. Not all locations are reachable with a good internet network.
- d. The costs incurred to support internet access are relatively expensive.

Learning is always related to changes in those who learn, whether it leads to better or worse. Learning is a personality change, manifested as a new response pattern in the form of skills, attitudes, knowledge and skills. The lesson is a series of events deliberately designed to influence students so the learning process takes place efficiently and according to the purpose. Thus learning and learning activities cannot be separated from one another. Because the two are interrelated. The explanation concluded that a correct understanding of the meaning of learning with all aspects, forms and manifestations is necessary for

educators, especially teachers and parents. Learning is a change that occurs in individuals who learn, not only changes in knowledge but skills in forming knowledge, habits, attitudes, understanding, mastery, and appreciation in individuals who learn. Identical to concluded that learning outcomes are the result of changes in behaviour that have the following characteristics:

- a. Change occurs consciously.
- b. Learning change is continuous and functional.
- c. Learning changes are active and positive.
- d. Learning changes are not temporary.
- e. Learning changes are purposeful and directed.
- f. The change covers the whole behaviour

Drawing conclusions that can be drawn from the quotations of the theories of experts in explaining the above understanding, namely, learning outcomes are changes in behaviour experienced by a person after undergoing a series of learning activities, the changes described here are changes in attitudes, knowledge, behaviour and skills in developing knowledge. Implementing e-learning-based learning is believed to positively impact student memory during the pandemic because the material that the teacher has delivered can be studied repeatedly to improve students' cognitive. However, in a learning activity, there will always be other obstacles that hinder the achievement of an e-learning learning objective, such as students who are in Islamic boarding schools find it challenging to share their time because there are time restrictions while using gadgets, costs for purchasing quotas and adjusting the available network in their study location which is sometimes still constrained by a slow signal. E-learning learning activities carried out by aqidah moral subject teachers through e-learning-based learning are still considered less than optimal, this is evidenced by the results of a questionnaire of 24.5% indicating students' low interest in learning through the e-learning-based model. Student learning outcomes through calculating the average value of student morals learning outcomes or the average value is 89.8. This means that the average value of student learning outcomes in the Aqidah Akhlak subject is categorized as very good. This proves that there is no effect, which is equal to 0.221. With the following information: It is known that the result of $r_0 = 0.221$. With respondents/ $N = 55$ and at a significance level of 5% $r_t = 0.279$. While at a significance level of 1% $r_t = 0.361$. Thus at a significance level of 5% or $< r_t$ ($0.221 < 0.279$). Likewise, at a significance level of 1% or $< r_t$ ($0.221 < 0.361$).

Conclusions

E-learning learning that students are interested in, evidenced by the results of a questionnaire of 24.5%. Student learning outcomes show excellent results, as evidenced by calculating the average value of student learning outcomes, or the average value is 89.8%. The calculation results show no influence between e-learning-based learning and student learning outcomes.

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