

# Experimentation of Mathematics Learning Assisted by the Digital Linktree Platform on Islamic Integrated Geometry Material to Improve Student Learning Outcomes

**Nurmalia Khoirunisa Zain\*, Ulfa Masamah**

Faculty of Education and Teacher Training, UIN Maulana Malik Ibrahim Malang,  
Jl. Gajayana No. 50, dinoyo, Kec. Lowokwaru, Kota Malang, Jawa Timur.

**Corresponding author\***

liazain84@gmail.com

**Abstract:** This research aims to determine the difference in students' mathematics learning outcomes with mathematics learning assisted by the Linktree digital platform, Islamic integrated geometry material and mathematics learning without using the assistance of a digital platform. The research method used is a quantitative comparative study approach for class VIII students at Sabilurrosyad Islamic Middle School, Malang, academic year 2023/2024. Data collection techniques use observation, tests and documentation which are then analyzed using inferential analysis with the independent t-test formula. The results of the research show that there are differences in the mathematics learning outcomes of class VIII students when learning mathematics using digital platforms and not using digital platforms. Based on tests distributed by researchers, students when learning mathematics assisted by digital platforms had an average score of 16.33 so they were classified as very good. Meanwhile, students who studied mathematics without using digital platforms had an average score of 15.22, so they were classified as good. Data analysis scores show that students when using digital platforms have higher learning outcomes compared to those without using digital platforms as evidenced by test results with a t-count value of 2,351 > t-table 2,010 at a significance level of 5%. So it can be concluded that student learning outcomes in mathematics learning assisted by the Linktree digital platform in Islamic integrated geometry material are higher than those without the assistance of the digital platform.

**Keywords:** Experimentation, digital linktree platform, student learning outcomes.

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## Introduction

Along with the rapid development of technology, education is required to develop following it (Ardipal, 2020). In school learning, teachers are required to provide innovations related to learning models that can utilize technology. To be able to design and implement learning requires an understanding of teaching strategies and mastery of teaching media that can answer student needs, as well as the demands of the times (Sadewo et al., 2022; Firdaus, 2018). This is in line with a statement from the Ministry of Education and Culture (Kemendikbud, 2023) that teachers are not only able to apply the use of technology in learning and teaching activities, but also in innovation work in learning.

Based on observations at SMP Islam Sabilurrosyad Malang, the school has provided facilities to support technology-based learning. Teachers also take advantage of these facilities by providing learning through learning videos that can be accessed through the Chromebook provided. Teachers also argue that by using these facilities, students are more enthusiastic about learning. But the use of technology or chromebooks provided tends to be less. Thus, teachers must innovate more to develop learning models or media.

One way to utilize technology that can be done is by providing a simple digital platform for students. A digital platform is a place, container, or means that facilitates the meeting of parties to

exchange information, trade, or offer services and services (Mahyudi, 2023; Syafii et al., 2023). A simple digital platform that can be used in learning is the linktree digital platform. The linktree digital platform contains a set of links or websites such as documents, youtube, games, and so on (Firda & Rachmadyanti, 2022; Kartika & Zakir, 2022).

With the use of learning media that are not commonly used by teachers, it will certainly have a different influence on student learning outcomes (Nurfitriyah, 2016). In this study, students were given a digital linktree platform in the form of Islamic integrated student worksheets on geometry material. On the platform, students can access worksheets based on the material to be studied. The material used on this platform is integrated with Islam. In addition to the material, there are also integration projects that students can do by connecting Islamic material that students have learned. Then students can also do practice questions or evaluations through wordwall links that students can do as well as play.

The reason this geometry material is integrated with Islam is because students are more accustomed to learning mathematics not only in geometry material in general. However, it can also understand that mathematics can also be studied through the Islamic field (Syamsuar et al., 2021). In addition, integration with Islam can also limit students in using technology or digital platforms that are being used (Fahrurrozi et al., 2020; Juanda et al., 2022). That is, students can also be indirectly limited through the cultivation of student character in the face of technology.

Research conducted by Sari dan Zulmaulida (2021) shows that there is an influence from using moodle as a digital platform on student learning outcomes. In addition, the use of technology is also shown in the research of Artanti et al. (2022), that the use of technology in the form of applications can improve student learning outcomes compared to the use of media commonly used by teachers. Thus, learning that utilizes the linktree digital platform has differences in learning outcomes with learning that only uses conventional methods. This study aims to determine the differences in students' mathematics learning outcomes with mathematics learning assisted by linktree digital

platforms, Islamic integrated geometry materials and mathematics learning without using the help of digital platforms.

## Materials and Methods

This study uses quantitative research methods with a comparative study approach that emphasizes collecting quantitative data from the field and using statistical data to clarify the comparison of students' cognitive competencies. The study was conducted at SMP Islam Sabilurrosyad with a sample of grade VIII students. The research design consisted of bound variables, namely students who used the linktree digital platform on Islamic integrated geometry material and students who did not use the linktree digital platform on Islamic integrated geometry material. While the independent variable is student learning outcomes.

Data collection techniques and instruments consist of observation, tests, interviews and documentation. Then for data analysis is carried out by descriptive data analysis, namely by describing the data obtained so that it can be understood in detail. Researchers took the average scores of students with the formula:

$$\text{mean} = \frac{\text{amount of data}}{\text{lots of data}}$$

In addition, normality tests and homogeneity tests will also be carried out as analysis requirements tests. Furthermore, a comparative hypothesis test of two samples is carried out using a t-test and finally the comparison results will be shown. The hypotheses to be proven are:

$H_0$  = There is no difference in the learning outcomes of students who use the linktree digital platform and those who do not use the linktree digital platform

$H_a$  = There are differences in the learning outcomes of students who use the linktree digital platform and those who do not use the linktree digital platform

## Results and Discussion

Before the researcher shows the experimental results of using the digital platform, the following shows the digital display of the Linktree platform used by students in Figure 1

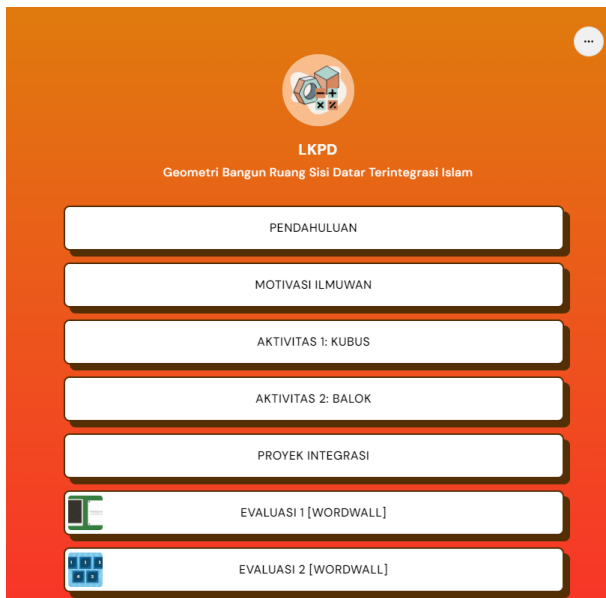


Figure 1. Digital Platform Linktree.

The research was conducted at SMP Islam Sabilurrosyad Malang class VIII as many as 27 students. Data is obtained through processing data and information from tests, observations, and interviews. Test results and interviews were used by researchers to determine the comparison of student learning outcomes on the use of the linktree digital platform on Islamic integrated geometry material.

From the results of observations made when mathematics learning takes place shows that students are more when given conventional learning without using media, students tend to get bored faster. This affects the concentration of students who only focus on the beginning of learning. Based on the test results given, the average score of 27 students was 15.22. Then the researcher calculated the standard deviation and produced a value of 1.8 which means that there is a deviation that is not too large. This is shown in Table 1.

Table 1. SPSS Statistics Results.

N	Valid	27
	Missing	0
Mean		15.22
Std. Error of Mean		.387
Median		15.00
Mode		15
Std. Deviation		1.858
Variance		3.451
Range		7
Minimum		11
Maximum		18
Sum		350

From the observations made when learning mathematics takes place shows that students are more enthusiastic about learning when using the linktree digital platform. Students feel not only glued to the books that must be read but also can access various material links that students want. Based on the test results given, the average score of 27 students was 16.33. Then the researcher calculated the standard deviation and produced a value of 1.4 which means that there is a deviation that is not too large. This is shown in Table 2.

Table 2. SPSS Statistics Results.

N	Valid	27
	Missing	0
Mean		16.33
Std. Error of Mean		.277
Median		16.00
Mode		18
Std. Deviation		1.441
Variance		2.077
Range		4
Minimum		14
Maximum		18
Sum		441

Before conducting data analysis, the prerequisites for analysis are first carried out, namely the normality test and the homogeneity test. A normality test is performed to test whether all variables are normally distributed or not. The normality test uses the Liliefors test, while the homogeneity test uses the Fisher test. A normality test is performed to determine whether a data is normally distributed or not. To find out whether a data is normal or not, namely by comparing the

value of  $L_0 < L$  table which is at the real level = 0.05. The accepted criterion is normally distributed data if  $L_0 < L$  tables, otherwise it is rejected. The normality test results can be seen in Table 3.

**Table 3.** Normality Test Results.

$L_0$	L-Tabel	Description
0.1216	0.1253	Normal

Based on the normality test, it can be seen that obtained  $L_0 < L$  table ( $0.1216 < 0.1253$ ). Then a homogeneity test was carried out to find out whether the data group had homogeneous variants or not. To determine homogeneity, the F (Fisher) test is performed. One of the conditions for knowing variance is homogeneous if the F value is calculated  $< F$  table. Based on the homogeneity test, it can be seen that in the research data, F count  $< F$  table ( $1.59 < 2.01$ ). The homogeneity test results are shown in Table 4.

**Table 4.** Homogeneity Test Results.

F <sub>hitung</sub>	F <sub>tabel</sub>	Description
1.59	2.01	Homogen

Then an inferential analysis is carried out consisting of a normality test and a homogeneity test. The normality test shows that the students' test data are normally distributed. As for the homogeneity test, it shows that the variants of both groups are homogeneous. Hypothesis testing was carried out to draw conclusions about differences in student learning outcomes in the use of the linktree digital platform on Islamic integrated geometry material. Researchers use the t-test formula to test the comparative hypothesis of the two variables. By using the degree of freedom  $dk = 48$  and the error rate 0.05, the value of  $t_{table} = 2.031$  is accepted. And vice versa, if the t-count is greater then  $H_0$  is rejected. So because t-count  $2,351 > t$ -table 2,010,  $H_a$  is accepted which means that "there are differences in student learning outcomes when using the linktree digital platform on Islamic integrated geometry material with the learning outcomes of students who do not use it".

Based on research data that shows differences in the learning outcomes of students who use the linktree digital platform on Islamic integrated geometry material and those who do not use the linktree digital platform, the researcher also found several findings that existed during the implementation of the study. Facilities and infrastructure, especially technology that has been facilitated by schools for students, are classified as limited use. Students cannot freely use the facility because it depends on the needs of the subject. So from this, teachers must be able to provide more innovation in utilizing the facilities that have been provided.

Linktree's digital platform is a simple platform that is very easy for students to access and use in learning. There is a development of learning media carried out by Fatchiyah and Utami (2022) which shows that linktree can be used as one of the innovations in providing learning media. The features on the linktree are actually unlimited. Teachers can make modifications related to any link or website that they want to connect to the platform. So, with this linktree platform, it can make it easier for teachers to teach while making it easier for students to access all forms of material to be learned.

Then, students are also less likely to be able to use technology geared towards learning. For example, students can seamlessly access youtube, games, and Instagram on chromebooks but students still struggle when accessing digital platforms linktree or google forms related to learning. This shows that students are also not used to using technology that is used in learning. Students are more accustomed to using applications that are often accessed than those that are rarely used. For example, in the use of other platforms, students tend to access WhatsApp Group more easily than using Google Meet (Rahayu & Sholikhah, 2021).

The difference in student learning outcomes when using the linktree digital platform shows the enthusiasm of students when studying Islamic integrated geometry material. Students who allegedly began to get bored with conventional learning methods began to be interested again when using the linktree digital platform. This is

also supported by research from Rahayu, et al. (2021) which shows that there is an influence on student learning outcomes when using platforms in their learning. Other research related to improving learning outcomes in the use of digital platforms is also shown by Sari and Zulmaulida (2021) who stated that there is a considerable influence on the use of digital platforms on student learning outcomes. In addition, the use of the linktree digital platform is not only limited to explaining the material, but also teachers can use it for learning as well as playing with students. Students who get learning by involving entertainment in it will tend to have an increase in learning outcomes (Chabib and Misbachul, 2020). So that students can still get knowledge as well as entertainment in it.

### Conclusions

From the results of the study above, it shows that students who do not use the linktree digital platform on Islamic integrated geometry material have an average score of 15.22 with a standard deviation of 1,8 so it is quite good. While students who use the linktree digital platform on Islamic integrated geometry material have an average score of 16.33 with a standard deviation of 1,4 so it is classified as good and superior to students who do not use it. Then for the value of t-table shows that  $H_a$  is accepted because  $t_{count} > t_{table}$  namely  $2.351 > 2.010$ . This shows that there is a significant difference in the learning outcomes of students who use the linktree digital platform and those who do not use it.

Suggestions for further research are to experiment with the use of linktree digital platform media on the scope of other mathematical materials. In addition, research can also be conducted to observe the influence of the use of digital platforms on other fields such as mathematical literacy, mathematical literacy, religious literacy and so on.

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