



# The Effect of the Mentimeter Application-Based PBL Model on Student Learning Interests in Science Learning Courses Integrated with Religious Values

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Received: April 4, 2023

Revised: June 3, 2023

Accepted: June 25, 2023

Published: June 30, 2023

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DOI: [10.29303/jppipa.v9i6.3569](https://doi.org/10.29303/jppipa.v9i6.3569)

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**Abstract:** Learning is a process in which there are various elements and components. The purpose of all of that is for students to know, be skilled and become better. Moreover, learning is done online, student interest in learning is rather low because the delivery can only be discussed, so researchers use models and media to increase student interest. The purpose of this study was to determine student interest before and after receiving treatment. The method used is quantitative in the form of a quantitative method. Pre-experimental design is a design that includes only one group or class given pre- and post-test research subjects of 35 students. As for the results of the study, the normality test indicates that the data is normally distributed, that the probability value  $>$  of 0.05 then  $H_0$  is accepted in the sense that the above data is normally distributed. In addition to the normality test, there is also a homogeneity test in which the results of the test show that the data is homogeneous. that the value of sig.  $>$  0.05, which is the sig. value of the data above 0.091, it can be said that the variances of two or more groups have the same data population. After the normality and homogeneity tests, the researcher analyzed the data using the Paired sample t-test and found that the sig. (2-tailed) is 0.000 less than 0.05, it can be concluded that there is a difference between not using the minute-meter-based PBL model and using the minute-meter-based PBL model.

**Keywords:** Learning Interest; Mentimeter Application; PBL Model; Religious Values; Science Learning

## Introduction

One of the strategic places to improve quality human resources is through education. so in education there is a need for an increase in quality and quantity (Muzayanati & Chusna, 2021). One of them with learning. Learning is a process in which there are various elements and components. The elements in question are learners, learning resources, materials and various stages of learning. The purpose of all of this is for students to become knowledgeable, skilled and better (Aini, 2019). Learning according to Gagne can be defined as a series of learning resources and procedures which are used to facilitate the learning process (Masgumelar

& Mustafa, 2021). Learning in behavioral theory has the goal of emphasizing knowledge with the result of forming behavior where behavior is influenced by the environment (Sani, 2013).

Educational Technology (in-structional technology) is a field of knowledge that exists to assist in solving learning problems (Muzayanati, Prastowo, et al., 2022). Technology is starting to be trusted by the general public, not only in commercial form but also in the field of education where This technology can help in the learning process. So here educators continue to innovate with various alternative choices so that the learning process continues (Muzayanati, Maemonah, et al., 2022). Online learning is learning that takes advantage of the

### How to Cite:

Nurhasnawati, N., Muzayanati, A., & Ichsan, I. (2023). The Effect of the Mentimeter Application-Based PBL Model on Student Learning Interests in Science Learning Courses Integrated with Religious Values. *Jurnal Penelitian Pendidikan IPA*, 9(6), 4331-4337. <https://doi.org/10.29303/jppipa.v9i6.3569>

internet by using media to convey information or learning. Here the teacher is required to be able to convey the material well in the hope that students or students can understand the material properly in class. In addition, it is hoped that students' interest in learning will not decrease, remain enthusiastic in participating in lectures, so that various online learning requirements or criteria are needed so that learning runs well and smoothly. According to Sun & Chen (2016), there are several requirements needed for the implementation of online learning properly, namely: good class design or e-learning model; good interaction or communication between teachers and students; and rapid technological developments. Of course, technological developments must be accompanied by the ability of educators and students to use this technology or students in learning (Irmada & Yatri, 2021).

The above criteria are requirements for online learning, so it is necessary when learning activities use interesting models or methods so that students' interest in learning does not decrease. As is the case with researchers, learning activities carried out at UIN Syarif Kasim Riau are carried out online, so educators need media to teach, one of which is using WA, Zoom, G-Meet, and also featuring Power Point applications. Apart from that, according to students, the Zoom implementation is easier to use besides that the video quality is also quite good. This is because Zoom Meeting is a video conferencing service that has efficient and flexible capabilities and can provide an online meeting atmosphere (Irmada & Yatri, 2021). However, from these various media there are still many students who are less active in participating in lecture activities such as asking questions and also express his opinion.

The online learning needs to use a learning model. The learning model is implemented in learning activities so that a curriculum (long-term learning plan) is created that regulates subjects and guides mentoring activities not only in the classroom. The task of learning models is to control the emergence and application of learning. The definition of a learning model depends on the type of theory applied, the objectives (skills) achieved in learning and the skill level of both students and students (Tusyadi, 2021). Interest in learning has a significant influence on learning outcomes. In addition to interest in learning, learning model factors can also affect learning outcomes. In this study the focus is more on learning models, one of which is called the use of problem-based learning models or often called (problem-based learning) (Husain and Natalia, 2019).

The PBL learning model is a learning model that allows students to solve real-world problems through the steps of the scientific method. This allows students to acquire knowledge related to these issues and develop skills to solve real-world problems (Widyaningsih et al.,

2019). The starting point of problem-based learning is to create a stimulating learning atmosphere that activates or treats students as the protagonists of learning, which encourages independent thinking for students, values continuous activity and ultimately self-confidence. (Yunitasari & Hardini, 2021). The main principle of problem-based teaching (PBL) is the use of real-world problems as a means by which students can develop knowledge and develop critical thinking and problem-solving skills (Jannah et al., 2020).

The PBL model or commonly referred to as problem-based learning in which students or students in understanding must not only understand concepts relevant to the problem at hand, but also gain learning experiences related to the skills of applying the scientific method in solving problems and cultivating critical thinking models (Yusuf et al., 2020). Therefore, educators are encouraged to produce ideal learning by using learning system tools and implementing student-centered learning so that students learn actively. The use of student-centered learning is sought to help students be able to analyze complex problems using various methodologies and look at answers cooperatively (Risky & Liana, 2022).

The application of this model does not escape with various other supports which are to attract students' interest. Interest in learning is whereas interest in learning according to Guilford is the existence of encouragement from within students psychologically in learning something with full awareness, calm, and discipline so that it causes individuals to be active and happy to do it. Student learning interest can be interpreted as a prerequisite for students who can foster a sense of interest and arouse someone's enthusiasm to carry out an activity, which can be measured by sympathy, interest, attention and participation in the learning process (Friantini & Winata, 2021). Higher interest in learning will increase student learning achievement (Mansur & Rafiudin, 2020).

High interest in learning makes it easier for students to achieve their learning goals. Although low interest in learning can result in a person's deficiency in certain fields, it can even result in hostility from the teacher (Fatimah et al., 2021). Someone who has an interest in and motivation for learning will naturally feel like participating in that learning (Taufiq et al., 2021). Indicators of interest in learning Furthermore, the indicators of interest in learning are feelings of pleasure, interest in learning, showing attention while studying, involvement in learning (Friantini & Winata, 2021). Growing this interest is also inseparable from various applications that support one of them in the use of the meter application.

Mentimeter is a web-based application that is used to carry out survey activities in a seminar or study

environment. Some of the benefits of the Mentimeter application include as a tool that can influence student interest in learning activities in science course integrated by religious value, as a tool that can be used to collect data, as a tool that can be used to express opinions, and as a tool that can be used as a reflective tool to measure learning activities (Herlawati et al., 2021). Mentimeter App is an easy-to-use distance learning presentation software to make your presentations more interactive, memorable and fun (Sunarti, 2021). This is a concrete step from us to improve teachers' ability to create interactive learning media independently (Samsiana et al., 2022).

The Mentimeter application can be used as a learning tool because it is an interactive presentation application that allows students to immediately react to lecturer material by sending their responses via the Mentimeter application on their installed cellphones. (Lusiani, 2021). Mentimeter is an online application that offers significant benefits. This application allows users to make presentations and receive feedback from the audience through polls, charts, quizzes, questions and answers, and other interactive features. The timer is used as a learning tool when holding apperceptions or asking questions during learning to activate students in learning (Anggriani et al., 2022). So from the various problems above, the researcher took the title The Influence of the mentimeter application-based PBL Model on student interest in the Capita Selecta Education course.

**Method**

This research was conducted at UIN Sultan Syarif Kasim Riau which was held from 28 October to 2 December 2022 with 35 student research subjects. The method used is a quantitative method in the form of a quantitative method. Pre-experimental design is a design that includes only one group or class given pre- and post-tests (Sugiyono, 2017). This one group pretest and posttest design was carried out on one group without a control or comparison group (Sugiyono, 2019). This can happen because there is no control variable, and the sample is not chosen randomly. that one group pretest-posttest design is a research activity that provides an initial test (pretest) before being given treatment, after being given treatment then gives a final test (posttest). This pretest is carried out by giving a questionnaire to students where the instrument has been adjusted to indicators of interest in learning.

Comparison of the results before using the mentimeter-based PBL model and after using the

mentimeter-based PBL model the researcher will provide important aspects in determining indicators of interest in learning, which indicators are used in making questionnaires. The questionnaires made were tested by normality, homogeneity and T-tests as for several indicators of student interest in learning.

**Table 1.** Indicators of Interest in Learning

Indicators	Information
Feeling happy	Opinion of students about Education Capita Selecta Learning
	Students' impressions of lecturers capita selekta education
Attention while studying	Feelings of students while participating in educational capita selecta learning
	Attention when participating in education capita selecta learning
Interest to learn	The attention of students during the discussion of education capita selecta learning
	Curiosity of students when participating in learning
Engagement in learning	Acceptance of students when given assignments by lecturers
	Awareness about studying at home
	Student activities after and before entering lectures

**Result and Discussion**

Science Learning in Photosynthesis Material, the material is integrated with Al-Quran verses and the values that can be taken from these verses in Table 2.

*Normality test*

Normality testing usually uses the Kolmogorov-Semirnov formula or commonly called the Kolmogorov-Semirnov test. The advantage of this test is that it is simple and does not cause differences in perception between one observer and another. As for how to read it: Ho: Population with normal distribution; Ha: The population is not normally distributed. Basis for decision makers based on probability: If the Probability value is > 0.05 then Ho is accepted (Probability value is more than 0.05); If the probability value is <0.05 then Ho is rejected (probability value is less than 0.05) as seen in Table 3.

From the Table 3, the probability value is > 0.05, the probability value for the data above is 0.200, so Ho is accepted, meaning that the data above is normally distributed. In addition to the normality test, the researcher also tested homogeneity.

**Table 2.** Course material integrated with religious values (Qur'an)

Material	Quran Verses	Value
<p>Photosynthesis and the Environment</p> <p>Plants obtain food through the process of photosynthesis. Photosynthesis is a process or manufacture of food in plants, especially in plants that contain green matter or chlorophyll. The verse beside explains that it is Allah who sends down water. The water can produce fruit. We need to know that before producing fruit, water is an ingredient in the process of photosynthesis. The above process shows the power of Allah SWT which is so amazing where excess food is stored in the form of fruit and we can consume the fruit besides that the result of photosynthesis is oxygen. This oxygen is needed by all living things including us where this oxygen is needed to breathe so that we stay alive. Imagine if we bought this oxygen, we would definitely spend a lot of money. here we are provided by Allah SWT for free, so we should be grateful to Allah because Allah provides sustenance through plants, for example, fruit that we can eat and oxygen that we breathe.</p>	<p>اللَّهُ الَّذِي خَلَقَ السَّمَوَاتِ وَالْأَرْضَ وَأَنْزَلَ مِنَ السَّمَاءِ مَاءً فَأَخْرَجَ بِهِ مِنَ الثَّمَرَاتِ رِزْقًا لَكُمْ ۚ وَسَخَّرَ لَكُمْ الْفَلَكَ لِتَجْرِيَ فِي الْبَحْرِ بِأَمْرِهِ ۚ وَسَخَّرَ لَكُمْ الْأَنْهَارَ</p> <p>Meaning: It is Allah who has created the heavens and the earth and sends down water (rain) from the sky, then with that (rainwater) He issues various fruits as sustenance for you; and He has subjected ships for you to sail the seas by His will, and He has subjected the rivers to you (Q.S. Ibrahim: 32)</p>	<p>Thank God for taking care of the environment.</p>

**Table 3.** One-Sample Kolmogorov-Smirnov Test

		Unstandarised Residual
N		35
Normal Paramete	Mean	0.000
	Std. Deviation	2.235
Most Extreme Differences	Absolute	0.105
	Positive	0.088
	Negative	-0.105
Test Statidtic		0.105
Asymp Sing. (2-tailed)		0.200

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

*Homogeneity Test*

**Table 4.** Test of Homogeneity of Variances

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	146.669	8	18.334	1.976	0.091
Within Groups	241.217	26	9.278		
Total	387.886	34			

This homogeneity test is carried out to find out whether or not the variances of two or more distributions are the same. Basis for decision making in Homogeneity test: If the sig. <0.05, then it can be said that the variance of two or more population data groups is not the same; If the sig. > 0.05, it can be said that the variances of two or more groups have the same data population.

The data on Table 4 shows that the sig. > 0.05, which is the sig. value of the data above 0.091, it can be said that

the variances of two or more groups have the same data population. After the normality and homogeneity tests, the researchers conducted the Paired T-Test.

*Paired Sample T-Test*

The basic concept of the Paired sample T-test is to find out whether there is a difference in the mean of two paired samples (same sample but there are two data). The Paired sample t-test is a parametric statistic which according to the rules in the research data must be normally distributed.

Basis for decision making: If the sig. (2-tailed) <0.05, it can be said that there is a significant difference in the data studied; If the sig. (2-tailed) > 0.05 it can be said that there is no significant difference in the data studied.

The Problem Based Learning model can improve students' abilities in mathematical understanding as shown by the results of research on the response of students' interest in learning mathematics which has a strong effect on students' achievement of mathematical understanding which is equal to 76.3 in the strong category (Jannah et al., 2020; Ramadhania et al., 2020). The Problem Based Learning model with the help of a Web application shows that students' enthusiasm is very good in participating in learning, besides being enthusiastic, student scores are quite satisfying (Subekti, 2022). The third study from Andriansyah et al. (2022), that the mentimeter application shows that there is positive feedback from students which stimulates students' interest and motivation. The use of interactive learning media assisted by a contextual approach is also quite effective in learning, seen from the significant increase in student learning outcomes (Putra & Andriansyah, 2022).



**Table 5.** Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before	56.66	35	3.378	0.571
	After	60.23	35	2.462	0.416

**Table 6.** Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 before & after	35	0.420	0.12

**Table 7.** Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	Sig. (2-tailed)
				95% Confidence interval of the Defference				
				Lower	Upper			
Pair 1 before & after	3.571	3.238	0.547	-4.684	-2.459	-6.524	34	0.000

The fourth research from yuli Fitriasia regarding the manufacture of interactive teaching devices in the form of meter applications which provide insight to teachers to make learning more interesting and make students enthusiastic in learning activities (Umban et al., 2022). The effect of using mentimeter media on student outcomes was obtained from the normality test with a significance value of less than 0.05 and a homogeneity test with a result of 0.647 which states that the data is not normally distributed and not homogeneous. The results of the data from the Mann-Whitney test obtained a result of 0.000 where the results obtained were not up to 0.05 (0.000 < 0.05) (Nasution & Anas, 2022).

**Conclusion**

The results of the data analysis above show that the normality test indicates that the data is normally distributed, that the probability value is > 0.05, then Ho is accepted, meaning that the data above are normally distributed. In addition to the normality test, there is also a homogeneity test in which the results of the test show that the data is homogeneous. that the value of sig. > 0.05, which is the sig. value of the data above 0.091, it can be said that the variances of two or more groups have the same data population. After the normality and homogeneity tests, the researcher analyzed the data using the Paired sample t-test and found that the sig. (2-tailed) is 0.000 less than 0.05, so it can be concluded that there is a difference between not using a mentimeter-based PBL model and using a mentimeter-based PBL model. From the results of the analysis above, there is a significant influence of the problem-based learning model based on minutes on students' interest in attending lectures on science course integrated by religious value.

**Author Contributions**

The first author provides an opportunity for the second author to conduct research in the first author's class, in addition to being a supervisor and funding the publication of articles, the

second author serves as a researcher and writes articles, the third author as a supervisor.

**Funding**

This authorship is self-funded or individually funded.

**Conflicts of Interest**

No Conflicts of interest.

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