

A Comparative Study Of The Student Facilitator And Explaining Models Versus Conventional Learning Models On Students' Mathematical Problem-Solving Skills And Self-Confidence

Umi Fitriani Mursyidah ^{a,1*}, Naili Luma'ati Noor ^{a,2}

^a Universitas Islam Negeri Sunan Kudus, Kudus, Indonesia

¹ ufitriani254@gmail.com; ² naililumaatinoor@uinsuku.ac.id

*Correspondent Author

Received: 13-07-2026

Revised: 26-08-2026

Accepted: 06-09-2026

KEYWORDS

Student Facilitator and Explanation Model, Conventional Learning Model, Mathematical Problem-Solving Skills, Self-Confidence

ABSTRACT

Education is an effort to provide individuals with knowledge, insight, skills, and specific expertise so they can develop their potential and be able to cope with the changes brought about by advances in science and technology. One approach teachers can use in the learning process to improve students' mathematical problem-solving skills and self-confidence is to implement the Student Facilitator and Explaining learning model. The objectives of this study are 1) to test whether the mathematical problem-solving abilities of students taught using the Student Facilitator and Explaining learning model are better than those of students taught using the conventional learning model; and 2) to test whether the self-confidence of students taught using the Student Facilitator and Explaining learning model is higher than that of students taught using the conventional learning model. This study is a quantitative study using the Quasi-Experimental method. The population in this study consists of all 76 tenth-grade students at MAN 5 Bojonegoro, and the sampling technique used is cluster random sampling to select one class as the control group and one class as the experimental group. The testing method used an independent t-test, and data collection techniques involved documentation, as well as instruments used in the study in the form of test questions and questionnaires to be administered to the 10th-grade class selected as the sample. The findings of this study led to the following conclusions: 1) There is a difference in mathematical problem-solving ability between the experimental class and the control class; based on the independent samples t-test, the results show that the calculated t-value = 10.944 > = 2.093, and under "Equal variances assumed," the Sig. (2-tailed) value is 0.000 < 0.005, with the mean score of the 19 students in the experimental class being 78.11, which is higher than that of the 18 students in the control class, which is 58.39. 2) There is a difference in student self-confidence between the experimental and control classes; based on the independent samples t-test, the results show that the calculated t-value = 3.417 > = 2.069, and under the "Equal variances assumed" assumption, the Sig. (2-tailed) value is 0.002 < 0.005. The mean score of the 19 students in the experimental class (80.16) is higher than that of the 18 students in the control class (69.67). Therefore, it can be concluded that students' mathematical problem-solving skills and self-confidence in the application of the Student Facilitator and Explaining learning model are better than those using the conventional learning model.

This is an open-access article under the [CC-BY-SA](#) license.



Introduction

Education is a crucial process in the development of human potential. Through education, students acquire the knowledge, skills, and experience necessary to keep pace with the rapid advancements in science and technology. Education serves not only as a means of transferring knowledge but also as a way to shape students' character and abilities to address the various challenges of life (Anni Holila, 2018). Law No. 20 of 2003 on the National Education System states that the national education system serves to develop abilities and shape the character and civilization of a dignified nation in order to enlighten the nation's life. Education also aims to develop the potential of students so that they may become individuals who are faithful, devout, knowledgeable, creative, independent, and responsible. From an Islamic perspective, the importance of education is also explained in the Qur'an, Surah Al-Mujadalah, verse 11, which states that Allah SWT will elevate the status of those who have faith and knowledge. Therefore, education plays a vital role in shaping the quality of human resources (muslimah, 2021).

One of the subjects that plays a crucial role in education is mathematics. Mathematics is taught at every level of education because it helps develop logical, systematic, critical, and creative thinking skills. In addition, mathematics also serves as a tool for students to understand and solve various problems they encounter in daily life (Samsul Maarif, 2023). One of the essential skills students must develop in mathematics is mathematical problem-solving. Problem-solving involves students' ability to understand a problem, plan a solution, implement a solution strategy, and verify the results obtained. This skill is a key objective in mathematics education because, through problem-solving, students can apply the mathematical concepts they have learned to solve various problems (Anni Holila, 2018).

However, students' mathematical problem-solving skills remain relatively low. Many students struggle to understand problems, determine solution strategies, and draw conclusions from the results they obtain. This situation indicates that current mathematics instruction has not yet been fully effective in optimally developing students' thinking skills (risnawati, 2018). In addition to mathematical problem-solving skills, another important affective aspect for students to possess is self-confidence. Self-confidence is an individual's belief in their own ability to handle various situations and challenges. Students with high self-confidence tend to be more active in learning, are bold in expressing their opinions and asking questions, and are able to complete tasks independently. Conversely, students with low self-confidence often feel hesitant, are afraid of making mistakes, and are less active in the learning process (Dwi Saputri, 2021).

Based on observations and interviews with mathematics teachers, it was found that some students still lack confidence in participating in mathematics lessons. This is evident in the students' reluctance to express their opinions, answer the teacher's questions, or present their work in front of the class. In addition, students also tend to give up easily when faced with problems they consider difficult (MAN 5 Bojonegoro, personal communication, Oktober 2023). Students' low mathematical problem-solving skills and self-confidence can be influenced by various factors, one of which is the use of inappropriate teaching models. Instruction that still relies on conventional learning models tends to be teacher-centered, resulting in students passively receiving information. In conventional learning models, the teacher serves as the primary source of learning, while students primarily listen, take notes, and complete assigned tasks. This situation limits students' opportunities to develop their thinking skills and self-confidence (muslimah, 2021).

One alternative instructional model that can be used to address this issue is the Student Facilitator and Explainer (SFAE) model. This instructional model provides students with the opportunity to play an active role in presenting and explaining the material to their peers. Through these activities, students not only understand the material being studied but also develop communication skills, learn to express their opinions, and boost their self-confidence. The Student Facilitator and Explaining learning model also encourages students to actively discuss, exchange information, and solve problems together. It is hoped that students' active

involvement in learning will improve their mathematical problem-solving skills while fostering greater self-confidence compared to conventional learning models.

Based on the above discussion, research is needed to determine the differences in mathematical problem-solving skills and self-confidence between students who learn using the Student Facilitator and Explaining learning model and those who learn using the conventional learning model. Therefore, the researcher is interested in conducting a study titled "A Comparative Study of the Student Facilitator and Explaining Learning Model versus the Conventional Learning Model on Students' Mathematical Problem-Solving Skills and Self-Confidence."

Research Methods

This study employs a quantitative research design using the quasi-experimental method. A quasi-experiment, or pseudo-experiment, is a type of experimental design derived from the true experimental design. This design includes a control group but cannot fully control the external variables that influence the conduct of the experiment. The Quasi-Experimental method aims to compare students' mathematical problem-solving abilities and self-confidence between the experimental class and the control class through the student facilitator and explaining learning model. The Quasi-Experimental design used is the Posttest-Only Control Design. The Posttest-Only Control Design is a study that places research subjects into two classes distinguished as the experimental class and the control class, with both classes selected randomly(2016). This design involves two groups used in the study, namely the experimental group and the control group. To assess their mathematical problem-solving skills, students in the experimental and control groups in this study will answer questions provided by the researcher, all of which will be in the same format. The researcher will administer a questionnaire to the experimental and control classes to determine the extent of the students' self-confidence. The experimental class receives instruction using the "student facilitator and explaining" learning model, while the control class receives instruction using the conventional learning model.

The population is the totality of research objects or subjects defined by the researcher(Machali, 2017). According to Sugiono, the population is the domain of generalization consisting of objects or subjects that possess certain qualities and characteristics defined by the researcher for study, from which conclusions are subsequently drawn(2016). The population in this study consists of all 10th-grade students at MAN 5 Bojonegoro, totaling 76 students. A sample is a portion selected from the entire population under study and is considered representative of the entire population(Machali, 2017). According to Sugiono, a sample is a subset that shares the same characteristics as the population. Sampling in this study was conducted using the cluster random sampling technique, which involves selecting a sample from a group in a random manner. Based on the results of this process, Class X-1 was selected as the experimental class with 19 students, Class X-4 as the control class with 18 students, and Class X-3 as the experimental class with 19 students. The experimental class was treated with the implementation of the "student facilitator and explaining" learning model, while in the control class, the learning process used conventional instruction.

Data collection techniques are methods employed by researchers to obtain and collect data in an objective manner(Arikunto, 2010). In this study, the researcher used an essay-style test on the topic of SPLDV (System of Linear Equations with Two Variables), consisting of 5 questions. The test method was employed to determine the differences in students' mathematical problem-solving abilities between the experimental class and the control class. The use of a questionnaire to determine differences in student self-confidence between the experimental class and the control class. The researcher used a closed-ended questionnaire because respondents only had to check (√) the questions and select from four Likert scale response options. Additionally, the documentation method was used to collect data in the form of documents (notes) containing an overview of the school, location details, teacher and

student data, as well as to take photographs during the learning process and the posttest. Documentation was used as a complementary method to the other methods.

The researcher used a type of content validity test to assess the validity of the test items measuring mathematical problem-solving ability and the student self-confidence questionnaire. The researcher used the correlation formula proposed by Pearson, known as the product-moment correlation formula. In this study, reliability was assessed using Cronbach's Alpha coefficient. Subsequently, the discriminant power of a test item was tested based on the item's ability to distinguish between groups according to the measured aspect, in accordance with the differences within those groups. The purpose of the item discrimination analysis is to determine whether a test item is capable of distinguishing between students with high ability and those with low ability. Furthermore, the quality of the test items can be assessed based on the level of difficulty of each item. This was done to determine which test items were suitable and which were unsuitable for the study. Based on the analysis of the pilot test results, the researcher selected 5 test items and 26 questionnaire items that met the criteria for administration to the sample class. A normality test was conducted using the Shapiro-Wilk test to determine which statistical method to use in the subsequent analysis of the data. The homogeneity test was conducted to determine whether the data were homogeneous or not. The homogeneity test was performed using the F-test (Fisher's test) (Dina Fakhriyana, 2021). The significance level was set at 0.05. Hypothesis testing was conducted using parametric statistics, specifically an independent t-test, to determine differences in the learning models.

Results and Discussion

1. Overview

MAN 5 Bojonegoro is located at Jalan Dr. Soetomo No. 50, Pengkok Hamlet, Padangan, Padangan Subdistrict, Bojonegoro Regency, East Java. MAN 5 Bojonegoro's 10th and 11th grades use the Merdeka Curriculum, where there are no specialized tracks, and each cohort consists of 4 classes, while the 12th grade still uses the 2013 Curriculum, which consists of 2 classes in the Science track, 1 class in the Social Sciences track, and 1 class in the Religious Studies track.

2. Data Analysis

Instrument Testing

Pretest and Posttest Results for the Experimental Class. The learning model used in the experimental class, which was taught using the student facilitator and explaining model, yielded better results than the conventional learning model. The formula used to measure validity is the product-moment correlation formula. Of the 5 items tested for validity, all were found to be valid, and of the 26 questionnaires tested for validity, all were found to be valid and suitable for distribution because the table r value was less than the calculated r value. The reliability coefficient of test items and questionnaires is considered reliable if it is greater than 0.7. The reliability test used was Cronbach's alpha; for the test instrument, the coefficient was 0.889, which is classified as good because it is greater than 0.7. Meanwhile, the questionnaire instrument had a coefficient of 0.935, which is also classified as good because it is greater than 0.7. In the discrimination test of the piloted item analysis, all items were classified as good. And in the difficulty level test of the piloted item analysis, all items were classified as moderate.

Prerequisite Test

A normality test is used to determine whether a sample comes from a normally distributed population or not; the normality test was conducted using SPSS software with the Kolmogorov-Smirnov test. After conducting the normality test using the SPSS program with the Kolmogorov-Smirnov test, for the data on mathematical problem-solving

ability, the significance value for the control group was $0.957 > 0.05$. For the data on mathematical problem-solving ability, a significance value of $0.501 > 0.05$ was obtained for the experimental class. This indicates that the data are normally distributed. For the student self-confidence questionnaire data, a significance value of $0.842 > 0.05$ was obtained for the experimental group. For the student self-confidence questionnaire data, a significance value of $0.637 > 0.05$ was obtained for the control group. This indicates that the data are normally distributed.

The homogeneity test is used to determine whether the two samples have homogeneous variances or not; the data homogeneity test was conducted using SPSS software with the F-test (Fisher). The significance level of 0.338 was calculated using SPSS 26. Therefore, the statistical significance score is determined based on the mean, which is $(0.338 > 0.05)$. Consequently, it can be concluded that the control and experimental groups on the mathematical problem-solving task share the same variance (homogeneous). The significance level of 0.290 was calculated using SPSS 26. Therefore, the statistical significance score was determined based on the mean, which is $(0.290 > 0.05)$. Therefore, it can be concluded that the control and experimental classes in the student self-confidence questionnaire have the same variance (homogeneous).

Hypothesis Testing

In hypothesis testing, we must consider the prerequisite tests before conducting the hypothesis test. For the analysis in this study, the data are normally distributed and homogeneous. Therefore, the hypothesis test was conducted using parametric statistics. There are two results in this study, namely:

- a. The mathematical problem-solving skills of students in the experimental class are better than those in the control class.

The results of the preliminary analysis indicate that the data are normally distributed and have homogeneous variance. Since the samples are independent of one another, the test used in this study is the independent t-test. The tests conducted are as follows:

H_0 = The mathematical problem-solving skills of students in the experimental class are better than those in the control class

H_1 = The mathematical problem-solving skills of students in the experimental class are better than those in the control class

Next, determine the mean value of each variable by examining the hypothesis test group statistics as follows:

Table 1
Hypothesis Test Results Group Statistics

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Kemampuan pemecahan masalah matematis	Kelas Eksperimen	19	78.11	4.795	1.100
	Kelas Kontrol	18	58.39	6.118	1.442

Source: IBM SPSS 26 calculations

Based on the results of the "Group Statistics" output above, it is evident that the experimental class had 19 students with an average score of 78.11 on the mathematical problem-solving ability test, while the control class had 18 students with an average score of 58.39. Thus, based on descriptive statistics, it can be concluded that the average mathematical problem-solving ability of the experimental class is better than that of the control class; the experimental class

achieved an average score of 78.11, which is higher than the control class's average score of 58.39. Next, we determine the significance level to establish the basis for decision-making in the hypothesis testing using the t-test.

The significance can be seen in the table of t-test results; to determine whether the results are better or not, refer to the "Independent Samples Test" output below:

Table 2
Output of the Independent Samples Tes

Independent Samples Test										
		Levene's Test for Equality of Variances				t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Kemampuan pemecahan masalah matematika	Equal variances assumed	.942	.338	10.944	35	.000	19.716	1.802	16.059	23.374
	Equal variances not assumed			10.971	32.233	.000	19.716	1.814	16.023	23.410

Source: IBM SPSS 26 calculations

In the "Equal variances assumed" section, it can be seen that the Sig. (2-tailed) value is $0.000 < 0.005$; therefore, the decision in the independent sample t-test is that the null hypothesis is rejected and the alternative hypothesis is accepted. Based on the descriptive data, the average score for mathematical problem-solving ability in the experimental class is 78.11 and in the control class is 58.39. This indicates that the average score for mathematical problem-solving ability in the experimental class is higher than that of the control class.

- b. The self-confidence of students in the experimental class is higher than that of students in the control class.

H_0 = The self-confidence of students in the experimental class is no better than that of the control class

H_1 = The self-confidence of students in the experimental class is higher than that of the control class

Next, determine the mean value of each variable by examining the hypothesis test for group statistics as follows:

Table 3
Hypothesis Test Results Group Statistics

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Angket Self Confidence Siswa	Kelas Eksperimen	19	80.16	7.603	1.744
	Kelas Kontrol	18	69.67	10.874	2.563

Source: IBM SPSS 26 calculations

Based on the results of the "Group Statistics" output above, it is evident that the number of self-confidence questionnaire responses from students in the experimental class was 19 students with an average score of 80.16, while for

students in the control class, there were 18 students with an average score of 69.67. Thus, from a descriptive statistical perspective, it can be concluded that the average self-confidence of students in the experimental class is higher than that of the control class; the experimental class achieved an average score of 80.16, which is higher than the control class's average score of 69.67. Next, we determine the significance level to establish the basis for decision-making in the hypothesis testing t-test.

Significance can be determined from the t-test results table. To determine whether the results are better or not, refer to the "Independent Samples Test" output below:

Table 4
Output of the Independent Samples Tes

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
Angket Self Confidence Siswa	Equal variances assumed	1.155	.290	3.417	35	.002	10.491	3.071	4.257 16.725
	Equal variances not assumed			3.384	30.263	.002	10.491	3.100	4.162 16.820

Source: IBM SPSS 26 calculations

In the "Equal variances assumed" section, it can be seen that the Sig. (2-tailed) value is $0.002 < 0.005$; therefore, it can be concluded that H_0 is rejected and H_1 is accepted. Thus, there is a difference in self-confidence between the students in the experimental class and the control class. Based on the descriptive data, the average self-confidence score for the experimental class is 80.16 and for the control class is 69.67. This indicates that the average self-confidence questionnaire score for the experimental class is higher than that of the control class.

3. Discussion

Mathematical problem-solving skills to determine whether there is a difference between students in the control group and the experimental group. Based on the data analysis and research conducted, the results of the independent samples t-test indicate that the calculated t-value is 10.944, while the critical t-value at a significance level of 0.05 is 2.093, meaning that the calculated t-value is greater than the critical t-value ($10.944 > 2.093$). Thus, it can be concluded that there is a significant difference in the mathematical problem-solving ability between the control class and the experimental class.

Based on the above description, the experimental class has a higher score with an average of 78.11 compared to the control class, which has an average of 58.39. The mathematical problem-solving ability of the experimental class is greater than that of the control class, because the "student facilitator and explaining" learning model is very effective in enhancing mathematical problem-solving ability, as students understand the material they are learning through their peers acting as substitutes for the teacher. In this study, students learned about linear inequalities in two variables, and based on their understanding, they were given a test to assess their mathematical problem-solving abilities, comparing the control class, which used direct instruction, with the experimental

class, which used the student facilitator and explaining learning model. The results of the analysis showed a significant difference between the students in the experimental class and the control class, with the average score of the students in the experimental class being higher than that of the control class.

Problem-solving skills are one of the skills that students must master. In general, these skills are considered to be a person's ability to complete a task. A person is said to possess a skill if they are able and capable of doing something that they are indeed required to do. In our daily lives, we will inevitably face new problems. Every problem can be solved through a resolution process that is appropriate, correct, and effective. Therefore, problem-solving is the first step for us as human beings who are constantly required to solve the problems that constantly arise. Problem-solving is the skill or potential possessed by an individual or student to solve word problems, tackle non-routine problems, and apply mathematics in daily life or other situations. The purpose of problem-solving in mathematics is to help students improve their problem-solving skills and make them aware of problem-solving strategies. Problem-solving skills will help students realize that many problems can be solved in more than one way.

Thus, it can be concluded that there is a difference in mathematical problem-solving ability between students in the experimental class and the control class. Therefore, the student facilitator and explaining learning model can be concluded to effectively assess students' mathematical problem-solving ability because this model encourages students to be active in the learning process, which aims to enhance mastery of the subject matter. The student facilitator and explaining learning model encourages students to be active in the learning process and trains them to present their ideas or concepts to their peers, as well as to develop critical thinking skills in problem-solving. Student engagement in planning the material to be presented significantly influences the appropriateness and smooth implementation of the student facilitator and explaining learning model.

This finding is consistent with Zulfah Ubaidillah's study, which, based on established criteria, states that if $\text{sig. } 0.002 < 0.05$, then H_0 is rejected, meaning that the average mathematical problem-solving ability of students in the Problem-Based Learning class is higher than that of the conventional class (Ubaidillah, 2017). Similarly, in Noer Hikmatullah's study, the results show that the average posttest scores fall into the high category, using a t-test calculation. Thus, it can be concluded that there is an effect of using the cooperative learning model of the Student Facilitator and Explaining (SFaE) type on social studies learning outcomes among students in the social studies subject (Nikmatullah, 2017). Furthermore, in Nurhalima's study, based on the results of descriptive analysis, the average posttest score was categorized as high. Meanwhile, based on the results of inferential statistical analysis, it was shown that H_0 was rejected and H_1 was accepted; thus, it can be concluded that there is a significant effect on science learning outcomes among students using the Student Facilitator and Explaining learning model (2017).

The students' confidence in identifying differences between the experimental and control classes. Based on the data analysis and research that has been conducted, the results of the independent samples t-test show that the calculated t-value is 3.417, while the table t-value at a significance level of 0.05 is 2.093, meaning that the calculated t-value is greater than the critical t-value ($3.417 > 2.093$), so it can be concluded that H_0 is rejected and H_1 is accepted. Thus, it can be concluded that there is a significant difference in the self-confidence of students in the control class and the experimental class.

Based on the above description, students in the experimental class have higher scores, with an average score of 80.16 compared to the control class students, who have a mean score of 69.67. The self-confidence of the experimental class students is higher than that of the control class students, because the student facilitator and explaining learning model is very effective in assessing student self-confidence. Based on the results of the student self-confidence questionnaire completed by students in both the experimental and control classes, which included the following indicators: belief in one's own abilities,

independence in decision-making, a positive self-concept, and courage in taking action. The results of the analysis showed a significant difference between the students in the experimental class and the control class, with the average score of the experimental class being higher than that of the control class. This indicates that there is a difference in self-confidence between the students in the experimental and control classes.

Self-confidence is the belief in one's own abilities. Students with self-confidence will be proactive in preparing themselves for class. The specific foundation for mathematics is having curiosity, self-confidence, and an interest in mathematics, as well as developing self-confidence through learning experiences. Good self-confidence is when students have strong mathematical skills, can learn mathematics quickly and do not easily give up, demonstrate confidence in their mathematical abilities, and are able to think realistically. An individual's self-confidence is influenced by two factors: internal and external factors. Internal factors include life experiences, self-concept, and physical condition. External factors include family environment, education, and work. Emotional support and recognition from others, in the form of self-affirmation, are key contributors to self-confidence. If a person has a low level of self-confidence, it means that the individual feels emotionally uncomfortable, which is temporary. Meanwhile, students with high self-confidence will also view learning as a competent and challenging activity as a way to become better students. This sense of self-confidence is what will make these students more motivated and enjoy mathematics.

Thus, regarding the student facilitator and explaining learning model, it can be concluded that it is easy to assess students' self-confidence because this learning model encourages students to be active in the learning process, where students must be confident and able to express their opinions when explaining the material to be discussed or understood in class, and students will find it easier to interact with one another.

This finding is consistent with Nana Fitriana's research, which showed that learning outcomes in Islamic Education taught using the Student Facilitator and Explaining model exhibited a significant increase, with the highest percentage in the experimental class XI IPS 1 falling into the high category, while learning outcomes in Islamic Education taught without using the Student Facilitator and Explaining model did not show a very significant improvement in learning outcomes, falling into the moderate category. The use of the Student Facilitator and Explaining model in PAI instruction at SMAN 2 Sidrap has been implemented with a fairly maximal improvement in learning outcomes, and there is a difference in PAI learning outcomes between those taught using the Student Facilitator and Explaining model and those taught without using the Student Facilitator and Explaining model (Fitriana, 2020). Also, in Anisaturrohman's study, based on the t-test, data was obtained for the self-confidence questionnaire of students, with a calculated t-value > the critical t-value, therefore it can be concluded that the self-confidence of students who were treated with the experiential learning model is higher compared to the lecture model. Regarding students' conceptual understanding, the data showed a calculated t-value > critical t-value, therefore it can be concluded that students' conceptual understanding with the experiential learning approach is better than that of the lecture-based learning model. From this data, it can be concluded that the self-confidence and conceptual understanding of students in the experiential learning group are superior to those of students in the lecture-based learning group (Anisaturrohman, 2020).

Conclusion

Mathematical problem-solving skills to determine whether there is a difference between students in the control group and the experimental group. Based on the data analysis and research conducted, the results of the independent samples t-test indicate that the calculated t-value is 10.944, while the critical t-value at a significance level of 0.05 is 2.093, meaning that the calculated t-value is greater than the critical t-value ($10.944 > 2.093$). Thus, it can be concluded that there is a significant difference in the mathematical problem-solving ability between the control class and the experimental class. Based on the above

description, the experimental class has a higher score with an average of 78.11 compared to the control class, which has an average of 58.39. The results of the analysis showed a significant difference between the students in the experimental class and the control class, with the average score of the students in the experimental class being higher than that of the control class. Thus, it can be concluded that there is a difference in mathematical problem-solving ability between students in the experimental class and the control class.

The students' confidence in identifying differences between the experimental and control classes. Based on the data analysis and research that has been conducted, the results of the independent samples t-test show that the calculated t-value is 3.417, while the table t-value at a significance level of 0.05 is 2.093, meaning that the calculated t-value is greater than the critical t-value ($3.417 > 2.093$), so it can be concluded that H_0 is rejected and H_1 is accepted. Thus, it can be concluded that there is a significant difference in the self-confidence of students in the control class and the experimental class. Based on the above description, students in the experimental class have higher scores, with an average score of 80.16 compared to the control class students, who have a mean score of 69.67. The results of the analysis showed a significant difference between the students in the experimental class and the control class, with the average score of the experimental class being higher than that of the control class. This indicates that there is a difference in self-confidence between the students in the experimental and control classes.

References

- Anisaturrohmah. (2020). EFEKTIVITAS MODEL PEMBELAJARAN EXPERIENTIAL LEARNING TERHADAP KEPERCAYAAN DIRI (SELF CONFIDENCE) DAN PEMAHAMAN KONSEP PESERTA DIDIK KELAS XI MIPA PADA MATERI ASAM BASA DI SMA NEGERI 1 WELAHAN JEPARA [Skripsi]. UIN Walisongo.
- Anni Holila, parsautan. (2018). EFEKTIVITAS MODEL PEMBELAJARAN STUDENT FACILITATOR AND EXPLAINING TERHADAP KEMAMPUAN PEMECAHAN MASALAH MATEMATIS SISWA DI MAN SIPIROK. 8.
- Arikunto, S. (2010). Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: Rineka Cipta.
- Dina Fakhriyana, D. (2021). Statistika Pendidikan. Farha Pustaka.
- Dwi Saputri, R. (2021). PENGARUH MODEL PEMBELAJARAN DISKURSUS MULTY REPRESENTATION (DMR) DENGAN PENDEKATAN RECIPROCAL TEACHING TERHADAP KEMAMPUAN PEMECAHAN MASALAH MATEMATIS DAN SELF CONFIDENCE. UNIVERSITAS ISLAM NEGERI RADEN INTAN.
- Fitriana, N. (2020). PENGARUH MODEL STUDENT FACILITATOR AND EXPLAINING PADA PEMBELAJARAN PAI TERHADAP HASIL BELAJAR DI SMAN 2 SIDRAP [Skripsi]. UIN ALAUDDIN MAKASSAR.
- Machali, I. (2017). Metode Penelitian Kuantitatif ; Panduan Praktis Merencanakan, Melaksanakan dan Analisis dalam Penelitian Kuantitatif. UIN Sunan Kalijaga.
- muslimah, nurul. (2021). PENGARUH MODEL PEMBELAJARAN STUDENT FACILITATOR AND EXPLAINING TERHADAP KEMAMPUAN PEMAHAMAN KONSEP MATEMATIS DAN SELF-CONFIDENCE PESERTA DIDIK. UNIVERSITAS ISLAM NEGERI RADEN INTAN.
- Nikmatullah, N. (2017). PENGARUH PENERAPAN MODEL PEMBELAJARAN STUDENT FACILITATOR AND EXPLAINING TERHADAP HASIL BELAJAR SISWA PADA MATA PELAJARAN IPS [Skripsi]. Universitas Muhammadiyah Makassar.
- Nurhalima. (2017). PENGARUH PENGGUNAAN MODEL PEMBELAJARAN STUDENT FACILITATOR AND EXPLAINING TERHADAP HASIL BELAJAR IPA PADA PESERTA DIDIK [Skripsi]. UIN ALAUDDIN MAKASSAR.
- risnawati. (2018). EFEKTIVITAS PENERAPAN MODEL PEMBELAJARAN STUDENT FACILITATOR AND EXPLAINING TERHADAP HASIL BELAJAR MATEMATIKA SISWA KELAS VII SMP NEGERI 1 TAROWANG KABUPATEN JENEPONTO. UIN ALAUDDIN MAKASSAR.
- Samsul Maarif, S. M. (2023). Model Pembelajaran Student Facilitator & Explaining Untuk Meningkatkan Kemampuan Numerasi Matematika Siswa. 7.
- Sugiono. (2016). Metodologi Penelitian Kuantitatif, Kualitatif, dan RnD. Bandung: Alfabeta.
- Ubaidillah, Z. (2017). Pengaruh Model Problem Based Learning Terhadap Kemampuan Pemecahan Masalah Matematis Siswa [Skripsi]. UIN Syarif Hidayatullah.