



Problem solving skill through *think pair share* model with murder approach viewed from learning interest of tenth grade students

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Abstract

This research focuses on mathematical problem solving skill through *Think Pair Share* model with MURDER approach viewed from learning interest of the students. TPS learning with MURDER approach was conducted through three phases of TPS namely Think, Pair, and Share. This research aimed to test the achieved of mathematical problem solving through TPS model with MURDER approach and to describe the problem solving skill through TPS model with MURDER approach viewed from students' learning interest. This research used *mixed methods* with concurrent embedded design. The samples of this research were tenth grade students of AP (experimental class) and tenth grade TP A (control class) of State Vocational High School 2 Rembang who were chosen through random sampling technique. The quantitative data collection technique used test, while qualitative data collection used triangulation technique. Sample selection on qualitative research used purposive sampling technique. The quantitative data were analyzed by using normality, homogeneity, equality of two means, t , and z tests. The qualitative data were analyzed by using data validation test, data reduction, data presentation, and verification and conclusion drawing. The results of the research showed that the (1) mathematical problem solving skill of the students through TPS model with MURDER approach achieved mastery learning, (2) the mathematical problem solving skill of the students through TPS model with MURDER approach was better than the mathematical problem solving skill of the students through expository learning model, (3) students with high learning interest could complied all mathematical problem solving skill indicators, (4) students with moderate learning interest could complied four mathematical problem solving skill indicators but they tend to be less thorough, and (5) students with low learning interest were less able to complied appropriate strategies application indicators to solve the problem.

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1. Introduction

The problems which are often found in learning are usually related to the ability of students. One of the problems in learning mathematics is digging the problem solving skill. A question can be categorized as a problem for students if the completion of the question indicates a challenge that can not be solved by routine procedures which have been already known by students (Roosilawati, 2013). Rahayu, et al (2017) suggests that one of the things that shows the lack of problem solving is that students tend not to write

down what is known and asked from the question so that students will find difficulty in solving the question.

Basically, learning problem solving is learn to use scientific methods or think systematically, logically, regularly, and thoroughly. The aim is to acquire cognitive abilities and skills to solve problems rationally, straight forwardly and thoroughly (Syah, 2008).

According to Wardhani, as quoted by Utami, et al (2015), problem solving is the process of applying previously acquired knowledge into new unknown situations. According to Taplin, as

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quoted by Setiawan (2014), the importance of problem solving can be viewed from three values, namely: (1) functionally, problem solving is important because through solving problems then the value of mathematics as an essential discipline can be developed; (2) logically, problem solving helps students enhance logical reasoning; (3) aesthetically, problem solving involves students' emotions during the problem solving process.

Siswanto, et al (2013) suggests that problem solving is very important in mathematics learning since most materials are problem oriented, such as creating patterns, interpreting images, proving theorems, and so on.

The observation result in tenth grade of State Vocational High School 2 Rembang shows that the process of learning by mathematics teacher of State Vocational High School 2 Rembang was explaining the material and then followed by giving examples of problems, and ended by giving homework. The results of interviews with teachers in mathematics field of study of tenth grade of State Vocational High School 2 Rembang shows that the problem solving skill and learning interest of the students were still low so that there were still learning results which were under the standard. Mathematics teachers of tenth grade of State Vocational High School 2 Rembang have been trying to improve the students' problem solvingskill, namely: teachers have held group learning, have given additional exercises in the form of stories and so on, but in fact, the aspects of learning objectives of mathematics, especially on students' problem solving skill on mathematics were still low. It was seen from the symptoms as follows. (1) When they were given questions different from the example, more than 60% of students cannot fix it; (2) If they were given homework, approximately 68% of students just waited and cheated the answer from his friends' in school; (3) When the teacher gave assignments, 65% of students' answers were wrong; (4) about 60% of students cannot explain the results of their work according to the problem of learning material that has been studied. This is reinforced by the implementation of preliminary tests on Tuesday, February 13th, 2018 in tenth grade of AP and TP A of State Vocational High School 2 Rembang. Based on the preliminary test results, an average of 47 with a maximum score of 90 was acquired, so teachers need to design a variety of learning, involving students actively in learning, and create high student learning interests so that the students will be able to solve mathematics problems.

Santosa, et al (2013) say that the efforts that can be done to overcome students' difficulties in solving problems is building a strong interest and willingness in students so they will learn and practice. One of the learning approaches that can build student interest and willingness is MURDER. Behzadi (2014) says that MURDER is based on six steps: mood, understand, recall, detect, elaborate, and review.

Further, Ardiani, et al (2016) say that learning MURDER creates a relaxed learning atmosphere so as to foster students' interest and attention in mathematics learning which in turn can improve problem solving skills. The result of Jozetani's (2015) research concludes that cooperative learning model of MURDER type can cultivate students' skill that were previously not used, enhance students' learning responsibility, and improve students' understanding in solving realistic problems. Alfurofika, et al (2013) add that the development of supporting social environment to improve problem solving skill can be done by providing cooperative learning model as a means of students to exchange opinions. *Think Pair Share* (TPS) is one of the cooperative learning model which can be used to discuss a mathematical concept with thinking procedure, pairing (mutual help) and share opinion which are expected to improve students' learning outcomes in school (Muhlisin, 2013). The TPS learning model is a type of cooperative learning designed to influence students' interaction patterns (Kuncoro, 2013). Graceful & Raheem (2011) argue that the TPS model is a superior model when it is compared to conventional model. The same opinion comes from the result of Pandya's research (2011) that the application of TPS type cooperative model gives a significant influence towards group performance in learning than the conventional learning.

The success of mathematics learning achievement is influenced by several factors that are divided into external and internal factors. External factors are factors from the outside students, including family environment, community, and supporting facilities. While internal factors are factors from within the students themselves, such as intelligence, talent, interest, creativity, and physical circumstances (Pramadita, 2013).

The condition of high and low students' learning interest will be very influential in the learning process. Students' interest has a function to evoke the learning passion because interest can

serve as a motivating force which encourages students to learn. The willingness of students who have a high learning interest, they will always try to search carefully, be passionate in digging and developing their basic potential (talent), so that they can stimulate their confidence and vice versa.

Regarding to explanation above, this research aims to examine the completeness of problem solving skill through TPS model with MURDER approach and to describe problem solving skill through TPS model with MURDER approach viewed from students' learning interest.

2. Methods

The research method used in this research was mixed methods with concurrent embedded design (Lestari, et al, 2015). The divisions of method in this research were qualitative method as primary method and quantitative method as secondary method that support the result of research so that the data obtained will be more accurate.

The population were tenth grade students of State Vocational High School 2 Rembang, school year of 2017/2018. Particularly, the samples were the students of tenth grade of AP (experimental class) and tenth grade of TP A (control class) of State Vocational High School 2 Rembang who were taken by random sampling technique. The research subjects were taken based on the questionnaire of learning interest and problem solving skill test, and there were 6 selected students.

Data collection methods used in this study were tests, observation sheets, questionnaires, and interviews. Quantitative data collection came from tests. Qualitative data collection came from triangulation technique namely test, observation and interview as well as triangulation. The test was used to measure students' problem solving skill. Observation sheets were used to determine teachers' performance and students' activities. Questionnaires were used to measure student's interest in learning. While the interview guidelines were used to determine students' problem solving skill viewed from students' learning interest. At first, instruments were analysed for their validity before they were used. Instrument analysis was divided into two: test analysis (problem solving skill test) and non-test analysis (observation sheets, questionnaires, and interview guidelines). The test instrument analysis consisted of validity (Arikunto, 2013), reliability (Arikunto, 2013), difficulty level (Arifin, 2012), distinguishing

power analysis (Arifin, 2012). While the non-test instruments were analysed for the content and construct validity. Content and construct validity were done by researcher and have been guaranteed by judgment experts, in this case, is thesis advisor and teachers at school concerned. Instruments can be used in research after the data met the test criteria.

3. Results & Discussions

Based on the result of preliminary data analysis in the form of odd semester examination's score, it was obtained that the sample comes from normally distributed population, has homogeneous variance and the same means. The learning was conducted three times, the experimental class used TPS model with MURDER approach, while the control class used the expository model. The problem solving skill final data were obtained through the experimental class *post-test* and control which were performed after the treatment.

3.1.1. The Results of Quantitative Data Analysis

The data analysis result of students' problem solving skill in the form of *post-test* in TPS model learning with MURDER approach and expository model learning can be known that the means of each class was 86,18 for experimental class and 78,31 for control class.

Hypothesis 1 test was used to find out whether the mathematics problem solving skill using TPS model with MURDER approach has reached learning completeness. Based on the result of analysis using *t*-test, the score of problem solving skill test between mathematics learning of TPS model with MURDER approach and expository learning was obtained that $t_{count} = 10,87$ and $t_{table} = 1,696$ so that H_0 was rejected and H_1 was accepted. It means that the means of students' problem solving skill *post-test* score using TPS model with MURDER approach is more than 70. In other words, the problem-solving skill of mathematics using TPS model with MURDER approach has reached the achieved mastery learning individually. Based on the result of the analysis using *z* test, the score of problem solving skill test between mathematics learning of TPS model with MURDER approach and expository learning was obtained that $z_{hitung} = 2,914$ and $z_{table} = 1,64$ so that H_0 was rejected and H_1 was accepted. It means that the proportion of students who have completed the study in the classroom using the TPS model with MURDER approach was more

than 75%. It can be said that the skill to solve mathematical problems using TPS model with MURDER approach achieved mastery learning classical.

Hypothesis 2 test was used to find out whether problem solving through TPS model with MURDER approach is better than problem solving skill with expository learning or not. Based on the result of analysis using t -test, problem solving skill test score between mathematics learning of TPS model with MURDER approach and expository learning was obtained that $t_{count} = 5,719$ and $t_{table} = 1,669$ so that H_0 was rejected and H_1 was accepted. It means that the means of students' problem solving skill *post-test* in the classroom which was using TPS model with MURDER approach was more than the means of students' problem solving skill in the expository learning model classroom. Then based on the result of the analysis by using the z test, the problem-solving skill between the mathematical learning of the TPS model with MURDER approach and the expository learning was obtained that $z_{count} = 1.753$ and $z_{table} = 1.64$ so that H_0 was rejected and H_1 was accepted. It means that the proportion of students who have completed the study in the classroom using the TPS model with MURDER approach was more than the proportion of students who have completed the study in the expository model classroom.

Regarding to preliminary research result above, it can be concluded that problem solving skill through TPS model with MURDER approach successfully achieved mastery learning and problem solving skill of students through TPS model with MURDER approach was better than those with expository learning model.

Furthermore, the experimental class which was using the TPS learning with MURDER approach consisted of 3 stages: *Think*, *Pair*, and *Share*. In the *Think* stage, teachers fostered *mood* by motivating students to attract their attention so that they were able to receive the lessons, not in forced circumstances and they were not bored with mathematics lessons. In this first stage, teachers made the classroom atmosphere to be more relax so that they were not tensed in receiving the lessons. Students were asked to think individually in advance about the problems given by the teacher before the group will be formed, consequently they would learn to manage the time and could increase their curiosity. The second stage was *Pair*. In this stage, the teacher organized the students into several groups. Later, they were asked to discuss

the problems so that their *understanding* would be appeared. Due to the discussion, the students would be able to practice socializing. The third stage was *share*. In this stage, the students presented the results of the discussion. The teacher took an important part of the discussion results (*recall*) so that the students could remember the materials more easily. The groups that did not conduct the presentation were asked to listen and detect the shortcomings (*detect*) and at the same time, the students were asked to provide a rebuttal or add an explanation if there was any error or shortcoming (*elaborate*) so that it trained their responsibilities. The last activity of this stage was the teachers and students together made a conclusion (*review*). Eventually, these three stages made the students trained in solving problems so that it made the learning outcomes to be more optimal.

Apparently, the results of this research are similar to Nataliasari's research (2014), the problem solving skill of students who obtained TPS learning model is better than those who gained expository learning. Graceful & Raheem (2011) explain that students with TPS models have superior skills than those with expository models. The result is similar with Pandya's research (2011) which reports that there is a significant influence on students who gained TPS type cooperative learning compared with those with expository learning. Warouw (2016) argues that learning with MURDER can improve the students' learning outcomes. Masela & Marasabessy (2016) also suggeste that students who received MURDER learning have better learning outcomes than the students with expository learning. Whereas in expository learning, the students can only become listeners while the teacher is more dominant in explaining the materials (Agbulu & Idu, 2008).

3.2. The Results of Qualitative Data Analysis

Qualitative data analysis in this research was conducted by data reduction, data presentation, and preliminary conclusion drawing. Data reduction was started by correcting the *posttest* results, correcting the learning interest scale, and determining the subject to be interviewed. In the results of this reduction, there were sub-chapters of research subject determination. The data reduction was also done on the observations and interviews of research subjects by simplifying the two results into a simple and neat language which concernedon problem solving skill.

The researcher used posttest and interview result of research subject. The analysis of problem solving skill was adjusted to the strategy and problem solving indicators. According to Polya as quoted by Marlina (2013), the problem solving strategy is (1) understanding the problem, (2) devising a plan, (3) carrying out the plan, and (4) looking back. In addition, there are four problem solving indicators on NCTM (2003) are (1) building new mathematical knowledge through problem solving, (2) applying and adapting appropriate strategies to solve problems, (3) solving arising problems in mathematics and in other contexts, and 4) monitoring and reflecting mathematics problem solving process.

The learning interest scale consists of 25 points of statements that have been validated by the experts. Based on the result of the learning interest scale analysis from 33 students, there were 10 students with high learning interest, 19 students with moderate learning interest, and 4 students with low learning interest.

In the selection of research subjects, two students of each level of learning interest have

been selected. The selected subjects were then interviewed. Based on the results of the analysis of learning interest scores, six research subjects who have been selected can be seen in Table 1.

Table 1. Research Subjects

No	Subject	Code	Category
1	S-1	E-08	High interest
2	S-2	E-12	High interest
3	S-3	E-14	Moderate interest
4	S-4	E-25	Moderate interest
5	S-5	E-16	Low interest
6	S-6	E-13	Low interest

Based on the results of interviews with research subjects and problem solving skill analysis of tenth grade of AP of State Vocational High School 2 Rembang, it is found that students who have high learning interest levels have good problem-solving skill and vice versa. The result of problem solving analysis at each level of learning interest can be seen in Table 2.

Table 2. Problem Solving Skill at Each Level of Learning Interest

Indicators	High Learning Interest	Moderate Learning Interest	Low Learning Interest
Building new mathematical knowledge through problem solving	Able to build mathematical knowledge by making mathematics model from the given problems and able to explain the process and reason of the work	Able to build mathematical knowledge by making mathematics model from the given problems and able to explain the reason of the work	Able to build mathematical knowledge by making mathematics model from the given problems and able to explain the process of the work although there are several short/brief reasons
Implementing and adapting various appropriate strategies to solve the problems	Able to implement and adapt the appropriate strategies to solve the problems and able to explain the reasons of choosing those strategies	Able to implement and adapt the appropriate strategies to solve the problems and able to explain the reasons of choosing those strategies	Less able to implement and adapt the appropriate strategies to solve the problems due to the difficulty in understanding the problems
Solving arising problems in mathematics and in other contexts	Able to solve arising problems with a coherent and proper procedure or way	Able to solve arising problems with acoherent procedure or way but sometimes the students are less thorough in calculation process	Less able to solve arising problems with acoherent procedure or way due to the difficulty in understanding the problems
Monitoring and reflecting mathematics problem solving process	Able to monitor and reflect mathematics problem solving process correctly and precisely and able to explain the conclusion drawing	Able to monitor and reflect	Less able to monitor and reflect mathematics problem solving process correctly and precisely and able to explain

	process	mathematics problem solving process correctly and precisely and able to explain the conclusion drawing process	the conclusion drawing process because they are fooled by the calculation done without looking back what was asked
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Based on the table above, problem solving skill of the students with high learning interest is better than the problem solving skill of those who have moderate and low learning interest. That is because most students with high learning interests are able to complete the problem solving according to the indicators. Some shortcomings of the students with high learning interest emerge due to the lack of time management in the calculation process. In other words, students with high learning interests only need the exercises to get used to working on problem solving.

The results of this research are similar to Lestari's research (2013) that students with high learning interests have better learning achievement than those with moderate or low learning interest. Mustaqim, et al (2013) explains that students with high learning interests have better learning achievement than the students with moderate learning interests, and students with moderate learning interests are having better learning achievement than students with low learning interests. Kpolovie (2014) argues that the increase of learning interest in the school can contribute to improving academic ability. It means that the higher the learning interest, the higher the academic ability. Again, Novianto & Subkhan (2015) find that there is a significant positive influence between learning interest, achievement motives, and readiness to learn so that the higher the learning interest of a student, then the learning achievement will be more optimal. Siagian (2012) also suggests that the higher the learning interest, so the learning achievement will be.

Based on the opinions of those experts, in order to improve students' problem solving skill, teachers should increase students' learning interest by using learning models that contain group work and using appropriate learning approaches. One of the learning models that can be used is TPS model with MURDER approach because this model has been proven to be able to improve students' mathematics problem solvingskill.

4. Conclusion

Based on research results and discussions in concerning on problem-solving skill through *Think Pair Share* model with MURDER approach

viewed from the learning interest of the tenth grade students, there are several conclusion obtained as follows:

- (1) TPS learning model with MURDER approach is effective towards mathematical problem solving skill (i) the results of mathematical problem solving skill test by using TPS learning model with MURDER approach achieved mastery learning, (ii) mathematical problem solving skill of the learners by using TPS learning model with MURDER approach is better than those with the expository model.
- (2) The descriptions of students' mathematical problem solving skill through TPS model with MURDER approach viewed from students' learning interest are as follows.
 - (i) The result of learning interest of tenth grade students of AP of State Vocational High School 2 Rembang shows that students with moderate learning interest are more than students with high and low learning interest. Students with high learning interest are more than students with low learning interests.
 - (ii) Students with high learning interest tend to be able to meet four indicators of mathematical problem solving skill: the ability to build new mathematical knowledge through problem solving, the ability to implement and adapt appropriate strategies for problem solving, ability to solve arising problems in mathematics, and the ability to monitor and reflect the mathematical problem solving process.
 - (iii) Students with moderate learning interests are able to meet four mathematical problem solving indicators but tend to be less conscientious.
 - (iv) Students with low learning interests tend to be able to meet one problem solving indicator that is the ability to build new mathematical knowledge through problem solving.

References

- Agbulu, O.N., & E.E. Idu. 2008. The Impact of Participatory and Expository Approaches on Learning of Agricultural Science In Senior Secondary Schools In Benue State. *Journal of Social Science*, 16(3): 245 – 249.
- Alfurofika, P.S., S.B. Waluya, & Supartono. 2013. Model Pembelajaran Jigsaw dengan Strategi Metakognitif untuk Meningkatkan Self-Efficacy dan Kemampuan Pemecahan Masalah. *Unnes Journal of Mathematics Education (UJME)*, 2(2).
- Ardiani, T.E., S.B. Waluya, & A.W. Kurniasih. 2016. Keefektifan Implementasi Pembelajaran CRH Berbantuan Kartu Masalah dalam Peningkatan Kemampuan Pemecahan Masalah dan Disposisi Matematik Siswa SMP Kelas VII. *Unnes Journal of Mathematics Education (UJME)*, 5(2).
- Arifin, Z. 2012. *Evaluasi Pembelajaran*. Bandung: Remaja Rosdakarya.
- Arikunto, S. 2013. *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Behzadi, M.H., F.H. Lotfi, & N. Mahboudi. 2014. The Study of Teaching Effective Strategies on Student's Math Achievements. *Mathematics Education Trends and Research (METR)*, 2014(40): 1-8.
- Graceful, O. & A.L. Raheem. 2011. Cooperative Instructional Strategies and Performance Levels of Students in Reading Comprehension. *International Journal of Science*, 3(2):103-107.
- Jozetani, L.K., A. Yarmohamadian, & M. Malekpur. 2015. Effectiveness of MURDER Method on the Improvement of Academic Performance of Children with Spelling Learning Disorder. *Magazine of E-learning Distribution In Academy*, 6(3): 1-9.
- Kpolovie, P.J., A.I. Joe, & T. Okoto. 2014. Academic Achievement Prediction: Role of Interest in Learning and Attitude toward School. *International Journal of Humanities Social Sciences and Education (IJHSSE)*, 1(11):73-100.
- Kuncoro, K.S., A. Suyitno, & E. Sugiharti. 2013. Keefektifan Pembelajaran TPS Berbantuan Mouse Michief terhadap Hasil Belajar Siswa. *Unnes Journal of Mathematics Education (UJME)*, 2(2).
- Lestari, I. 2013. Pengaruh Waktu Belajar dan Minat Belajar terhadap Hasil Belajar Matematika. *Jurnal Formatif*, 3(2): 115- 125.
- Lestari, K.E., & M.R. Yudhanegara. 2015. *Penelitian Pendidikan Matematika*. Bandung: Refika Aditama.
- Marlina, L. 2013. Penerapan Langkah Polya dalam Menyelesaikan Soal Cerita Keliling dan Luas Persegi Panjang. *Jurnal Elektronik Pendidikan Matematika Tadulako*, 1(1).
- Masela, A., & M.I. Marasabessy. 2016. Penerapan Model Pembelajaran Kooperatif Tipe MURDER (*Mood, Understand, Recall, Detect, Elaborate, Review*) terhadap Hasil Belajar dan Aktivitas Siswa Materi Peluang Kelas XI IPA SMA Advent Maluku. *Bimafika*, 8:25-30.
- Muhlisin, M. Asikin, & Kartono. 2013. Keefektifan Pembelajaran Model TPS Berbantuan GSP pada Pencapaian Kemampuan Pemecahan Masalah. *Unnes Journal of Mathematics Education (UJME)*, 2(1).
- Mustaqim, B., Riyadi, & I. Sujadi. 2013. Eksperimentasi Model Pembelajaran Kooperatif Tipe Think Pair Share (TPS). *Jurnal FKIP UNS*, 1(3).
- Nataliasari, I. 2014. Penggunaan Model Pembelajaran Kooperatif Tipe *Think Pair Share* (TPS) untuk Meningkatkan Kemampuan Penalaran dan Pemecahan Masalah Matematis Siswa MTs. *Jurnal Pendidikan dan Keguruan*, 1(1).
- Novianto, G. & Subkhan. 2015. Pengaruh Minat Belajar, Motif Berprestasi, dan Kesiapan Belajar terhadap Prestasi Belajar Siswa Kelas XI IPS pada Mata Pelajaran Akuntansi di SMA Negeri 1 Subah Tahun Pelajaran 2013/2014. *Economic Education Analysis Journal*, 4(2).
- Pandya, S. 2011. Interactive effect of cooperative learning model and learning goals of students on academic achievement of students in mathematics. *Mevlana International Journal of Education (MIJE)*, 1(2): 27-34.
- Pramadita, A.A., Mashuri, & R. Arifudin. 2013. Keefektifan Model Pembelajaran Course Review Horray terhadap Hasil Belajar dan Minat Belajar. *Unnes Journal of Mathematics Education (UJME)*, 2(2).
- Rahayu, D.P., Supriyono, & S.B. Waluya. 2017. Analisis Kemampuan Pemecahan Masalah Matematika Siswa SMK Kelas X *Boarding School* Ditinjau dari Gaya Belajar. *Unnes*

- Journal of Mathematics Education (UJME)*, 6(1).
- Roosilawati, E. 2013. *Karakteristik Kemampuan Bernalar dan Memecahkan Masalah Peserta Diklat Peningkatan Kompetensi Guru Kelas Sekolah Dasar*. Semarang: LPMP Jawa Tengah
- Santosa, N., S.B. Waluya, & Sukestiyarno. 2013. Kemampuan Pemecahan Masalah pada Pembelajaran Matematika dengan Strategi Master dan Penerapan Scaffolding. *Unnes Journal of Mathematics Education (UJME)*, 2(2).
- Setiawan, D., S.B. Waluya, & Mashuri. 2014. Keefektivan PBL Berbasis Nilai Karakter Berbantuan CD Pembelajaran terhadap Kemampuan Pemecahan Masalah Materi Segiempat Kelas VII. *Unnes Journal of Mathematics Education (UJME)*, 3(1).
- Siagian, R. 2012. Pengaruh minat dan kebiasaan belajar terhadap prestasi belajar matematika. *Jurnal Formatif*, 2(2): 122-131.
- Siswanto, B., S.B. Waluya, & Wardono. 2013. Peningkatan Kemampuan Pemecahan Masalah Melalui Pembelajaran IDEAL Problem Solving – Konstruktivisme Berorientasi Pendidikan Karakter. *Unnes Journal of Mathematics Education (UJME)*, 2(2).
- Syah, M. 2008. *Psikologi Pendidikan dengan Pendekatan Baru*. Bandung: PT. Remaja Rosdakarya.
- Utami, R., Kartono, & S.B. Waluya. 2015. Pencapaian Kemampuan dan Keterampilan Pemecahan Masalah Matematika Siswa Kelas VIII pada Pembelajaran Model CPS dan TAPPS. *Unnes Journal of Mathematics Education (UJME)*, 4(3).
- Warouw, W.S. 2016. Penerapan Model Pembelajaran Kooperatif Tipe MURDER untuk Meningkatkan Hasil Belajar Siswa pada Materi Panjang Garis Singgung Persekutuan Dua Lingkaran di Kelas VIII SMP N 6 Palu. *Aksioma jurnal Pendidikan Matematika*, 5(2).