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Analysis of Problem Solving Ability Based on Field Dependent Cognitive Style in Discovery Learning Models

Muhammad Marwazi[1]✉, Masrukan[2] & Ngurah Made Darma Putra[2]

[1] Madrasah Aliyah Nahdlatus Shaufiah, Wanasaba, Lombok Timur, Indonesia
[2] Universitas Negeri Semarang, Indonesia

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Abstract

There are several factors that influence problem-solving abilities including cognitive styles and learning models. This research aims to analyze the profile of students' mathematical problem-solving abilities with field dependent cognitive style and to test the achievement of classical learning completeness of students in solving mathematical problems with discovery learning models. The method used in this study is the mixed methods with concurrent embedded design. Data collection techniques were carried out using the Group Embedded Figure Test (GEFT) test, Problem-solving ability (TKPM) test, interview, and documentation. Based on the analysis of obtained data that in solving the problem with Polya's steps, field dependent subjects are able to understand the problem but still uses mathematical language that resembles the problem, unable to device a plan on a particular problem that requires deeper analysis, unable to carry out the plan properly on certain questions that require more analysis and look back the answer but cannot correct the mistake and the learning with the discovery learning model achieves average score of 77.39 of classical completeness in solving problems with which is higher then the Minimum Completeness Criteria (KKM) score of 65. Thus cognitive style is very important to be considered to determine the learning model that is suitable for students to be able to solve mathematical problems.

✉ Correspondence address:
Wanasaba, Lombok Timur, Nusa Tenggara Barat, 83653
E-mail: marwaziunnes@gmail.com

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INTRODUCTION

Mathematics as the queen of science will certainly be needed by other sciences as a tool to solve problems related to number operations, logic, or dealing with elements of space or relating to others that require mathematics. Problem-solving in mathematics needs to be studied by students so that they can combine elements of knowledge, techniques, rules, skills, and concepts that have been learned beforehand to provide new solutions. As for what is meant by problem-solving is "the process of finding a solution to the question, an unusual problem encountered" (Lintang, et al. 2017). Anderson in Riau & Junaidi (2016) stated that "problem-solving is a life skill that involves the process of analyzing, interpreting, reasoning, predicting, evaluating and reflecting". Thus, students who have problem solving skills will be used to solving problems in their daily lives by utilizing their mathematical skills

Problem-solving is one of the important components of the Mathematics Curriculum and contains the essence of Mathematics activities, so it needs attention in the learning process (Huda, et al. 2017). The importance of problem-solving is the focus of international attention in international education as stated by Wu and Zhang in Anderson (2009) that "there is an increasing focus on mathematical problem solving and modeling in Western and Eastern countries". According to Mashuri, et al. (2018) one of the goals of learning mathematics according to NCTM (2000) and BNSP (2006) is so that students have the ability to solve math problems. In Indonesia, one of the abilities needed by students according to the national body of professional certification (BNSP) is the ability to solve problems (Martyaningruma, et al. 2018).

The 2012 PISA test result in Indonesia ranked 64th out of 65 countries evaluated (OECD, 2015). Whereas the result of the 2015 PISA test which was attended by 70 countries involving 540,000 participants shows Indonesia ranked 63 in mathematics where Indonesia scored 386 points while the average score was 490**.** One of the assessed tests is the problem-solving ability (OECD, 2015). The result of Wulandari and Jailani's research (2018) showed that "the ability of mathematics of 15-year-old students in Daerah Istimewa Yogyakarta to solve the PISA model was higher than that of Indonesian students in the 2012 PISA, but still in the low category. The ability to solve PISA model questions for students in Daerah Istimewa Yogyakarta is still below the OECD average in PISA 2012. The findings from Edo, et al. (2013) shows that in working on PISA questions level 5 and 6 students experience difficulties in the process of formulating problems in daily life into mathematical models, the indicators such as interpreting the context of the real situation into a mathematical model, understanding the structure of mathematics (including order, relationships, and patterns) in the problem, the data shows that Indonesian mathematical abilities are still categorized as low compared to other countries participating in the PISA program.

There are several studies in Indonesia show that the Indonesian students find difficulties in solving mathematical problems (Mulbar, et al. 2017; Surya, et al. 2017; Alifani, et al. 2018). According to Alifani, et al. (2018) topic that is considered difficult by students in problem-solving is geometric topic. Adolphus in Masrukan & Mufidah (2017) revealed that "mathematics topic that students find difficult and feared in mathematics is a matter of geometry". They also state that "The branch of mathematical geometry is very appropriate to be used in measuring students' problem-solving abilities". Thus the choice of geometry material is very appropriate to be used as a measuring tool for problem-solving abilities. The problem-solving steps according to Polya as revealed by Sunandar, et al. (2018) are (1) Understanding the problem, (2) Devising a plan, (3) Carrying out the plan, (4) Looking back

In order to be able to solve problems properly, there are many factors that must be considered by the teacher in the learning process including cognitive styles and learning models. As said Vendiagrys, et al. (2015) that cognitive style has a very important role in the problem-

solving process. So is Jena (2014) stated "there is a positive relationship between cognitive style and problem-solving". Shi (2011) states that "cognitive style has a significant influence on the selection of students' learning strategies". Therefore, in order for students to have problem-solving skills, the teacher must pay attention to the cognitive style of each student and look for learning models that are compatible with their congnitive style.

Cognitive styles include stable attitudes, choices, or habit strategies that distinguish individual styles from feeling, remembering, thinking and solving problems (Saracho, 1997). Whereas Saxena (2014) stated, "Cognitive style refers to the way individuals respond to their stimulus". Based on psychological differences there are two cognitive style classifications namely Field Dependent (FD) and Field-Independent (FI). The focus of cognitive style on this study is Field Dependent proposed by Witkin. This is because both the FI cognitive style and the FD cognitive style are the most important dimensions (Al-Salameh, 2011). Therefore, by analyzing students' problem solving abilities with the field dependent cognitive style will help the teacher to overcome their weaknesses in solving mathematical problems

There are several research result showing that students with field dependent cognitive styles are students who have problems in solving mathematical problems. As the findings of Prabawa and Zainuri (2017) that in planning a settlement, implementing planning and re-examining FD students tend to be less able to complete the phase. Likewise the findings from Vendiagrys, et al. (2015) that the FD subject often does not get the right answer. Thus students with field dependent cognitive style must receive serious attention in mathematics learning so that they can learn in a classical way.

One of the learning models recommended for application in the curriculum of 2013 in Indonesia is the discovery learning model. discovery learning refers to the learning process in which the information obtained must be found by students so that the learning process is student-centered (Druckman & Ebner, 2018). According to Joolingen in Mawaddah, et al. (2015), discovery learning is learning where students build their own knowledge by experimenting and make conclusions about the rules/concepts from the result of the experiment. The learning steps of discovery learning model according to Syah in Heriyanto (2018) are (1) Stimulation, (2) Problem Statement, (3) Data Collection, (4) Data Processing, (5) Verification (Proof), (6) Generalization (Drawing Conclusions/ Generalizations. Discovery learning has several virtues, one of which is that it can make students more active in learning because students must connect new knowledge with the knowledge they get to find new concepts. This makes the learning process more meaningful and motivates students' curiosity in mathematics. (Sulistiani, et al. 2018). Because this model actively involves students to solve problems, the knowledge they have mastered is not easy to forget and they will be used to solving problems independently. Therefore learning like this is very helpful for students who have a dependent field cognitive style.

There are several studies which show that discovery learning models can improve students' problem-solving abilities. Discovery learning models can develop active student learning, focus on topics, children find themselves, investigate themselves, then the result obtained will be faithful and durable in memory (Estiwi, et al. 2015). The improvement of reaseach conducted by komariyah (2015) shows that mathematical problem-solving abilities of students who get learning with discovery learning methods. Likewise with the result of research from Apriandinata (2016) showed that mathematical problem-solving abilities and mathematical communication skills of students increased by using discovery learning methods. Therefore, in this study discovery learning learning model was applied to students with different cognitive styles to improve their problem solving abilities in geometric topic

The low problem-solving ability, not paying attention to students 'cognitive style, and learning models that are not in accordance with students' cognitive style are also problems that

researchers find in the Madrasah Tsanawiyah Nahdlatus Shaufiah Wanasaba Village, East Lombok District which causes learning disabilities classically. Thus this study aims to apply the model of discovery learning in students with field dependent cognitive style in order to be able to solve mathematical problems because students with style because students with field dependent cognitive style are students who need to get more attention in solving problems.

METHODS

The method used in this study was mixed method with concurrent embedded design. Combination research method that combines quantitative and qualitative research methods by mixing both methods unevenly. In this case, qualitative is more to be an emphasis and quantitatively used as supporting data. The population in this study were students of VIII B class MTs Nahdlatus Shaufiah Wanasaba East Lombok. This research design can be described as follows Figure 1.

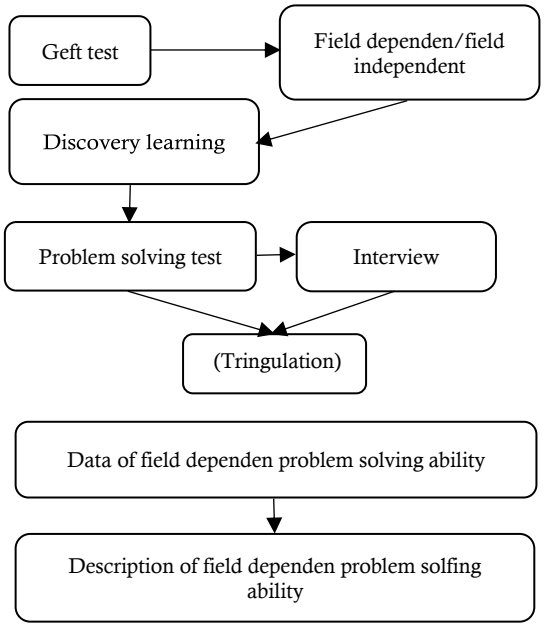

Figure 1. Research Design

At the first meeting researchers carry out the Geft test to determine the student cognitive style. After taking the test, obtained samples of students with field dependent cognitive style and field independent cognitive style. After that researchers applied discovery learning models on gometry topic. At the end of the meeting researchers carry out a test of problem solving ability (TKPM) to obtain quantitative data and qualitative data. Then the researchers interviewing students about their ability to solve problems. After that, the researchers combined the result of their problem solving ability tests and interview result (tringulation). From the test of problem solving and interviewing, the researcher obtained data about classical completeness and the result of the analysis of students' problem-solving ability with field dependent cognitive style based on polya's steps.

RESULTS AND DISCUSSION

After doing the GEFT test, learning with the discovery learning model, and followed by a test of problem-solving skills and interviews, the following data is obtained

Analysis of Problem Solving Ability Field Dependent Subject

In general, subjects with field dependent cognitive style have solved the problem by using Polya steps, this can be seen from the subject's answer to the problem-solving ability test. The maximum score for the four stages of problem-solving based on Polya in this study is 16 points to understand the problem and plan completion, 40 points to carry out planning and 8 points to re-examine. The following is the test result of the problem-solving ability of subjects with FD cognitive style from number 1 to number 8.

Based on Table 2 it can be concluded that in answering problem-solving problems all subjects with cognitive style FD do not get the maximum score out of the eight questions that have been answered. This is like the result of Ulya's, et al, research (2014) that the FD subject cannot correctly answer all indicators in problem-solving.

Table 1. Field Dependent TKPM Result

FD subjek	Understanding problems	Devising a plan	Carrying out the plan	Looking back	Total value
FD1	16	12	29	5	62
FD2	15	12	28	5	60
FD3	15	12	29	5	61
FD4	16	12	29	5	62
Maximum score	16	16	40	8	80

In understanding the problem of FDI Subjects getting 16, the FD2 subject got a score of 15, the FD3 subject got a score of 15 and FD4 got a score of 16. At this stage, the subject resolves the problem very well. This is also expressed by Anthycamurty (2017) which states that the FD subject is able to write the information contained in the problem clearly and can look for problems contained in the problem-solving problem clearly. In understanding the subject matter, FD writes what is known and asked in verbal sentences. Even though the FD subject changes what is known and asked into the mathematical sentence, there are sentences that are similar to the verbal sentences contained in the question.

Test result of the problem solving ability of FD subjects at the Understanding problems stage are presented in the following Figure 2.

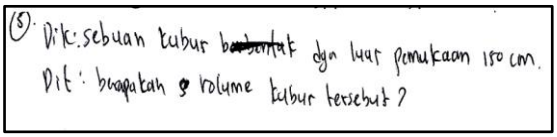

Figure 2. Understanding Problem Result of FD

In the devising a plan stage the completion of subjects with cognitive styles FD1, FD2, FD3, and FD4, has a value of 12 points. Thus at this stage, no FD subject gets the maximum score. at this stage, subjects with the cognitive style of FD had difficulties in answering questions number 5, 7 and 8. In answering this question they were unable to explain the formula that was used to solve the problem completely because to answer the question it needed the ability to find the formulas that were implied. This is as Ulya, et al. (2014) said FD subject is able to write the formula that will be used but not incomplete. While Anthycamurty (2017) states that "individuals with cognitive styles FD cannot determine the formula that will be used appropriately". Likewise, the findings of Geni, et al. (2017) stated "Students have not completed a strategy so students experience errors in solving problems for some problems and students cannot apply various problem-solving strategies. In interviews about their answers to questions number 5.7 and 8, on average they answered that they did not know how to solve them because they were different from the problems contained in the exercise. Therefore the subject of FD will be able to solve the problem if they have ever solved a problem similar to the problem.

Test result of the problem solving ability of FD subjects at the devising a plan stage are presented in the following Figure 3.

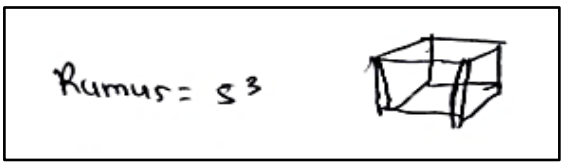

Figure 3. Devising a Plan Result of FD

On the answer above, the subject should add the cube surface area formula to find the side of the cube. but the subject did not do it so the answer was wrong

At Carrying Out The Plan, subjects FD1, FD3 and FD4 get a score of 29 points while the FD2 object gets a score of 28. So that at this stage the subject resolves the problem properly, the subject with cognitive style FD is able to find the answer correctly if they are right in understanding the problem and planning the solution, but on the contrary if they are wrong in understanding the problem and planning the solution, their final result is also wrong. This is as stated by Vendiagrys, et al. (2015) that for FD subjects in solving problems often cannot get the correct answer. FD subjects tend to be more influenced by external cues because FD subjects immediately think of strategies that have been used when finding similar questions.

Test result of the problem solving ability of FD subjects at the Carrying Out The Plan stage are presented in the following Figure 4.

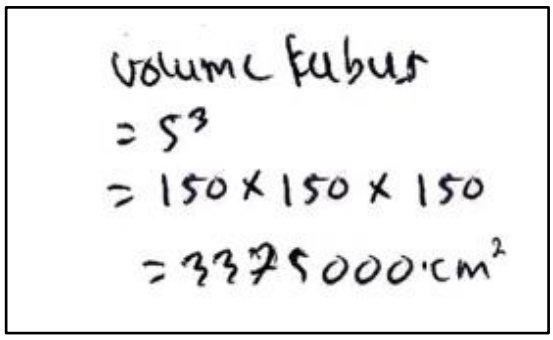

Figure 4. Carrying Out The Plan Result of FD

At the Looking Back stage theFD subject, the answer starts from checking the information that is known and being asked, the formulas used, the image of building space and the calculation of the final result. In checking again, there are subjects who do not know where the error is and some know where the mistake is but are unable to find the right answer. The FD subjects were also able to write down the conclusions obtained by this as stated by Ulya, et al. (2014) the FD subject is able to conclude the final answer. The conclusions are written based on the final result of the answers at the stage of carrying out the planning. Conclusions are made to answer the information asked about the problem. Therefore, the correct and wrong conclusions made depend on the final result at the stage of carrying out the planning. Therefore, because there are 3 questions that are wrong in how to answer them, the conclusion of the three questions is also wrong. It was also stated by Anthycamurty (2017) that the FD subject is not able to make conclusions that are in accordance with the answers correctly and unable to examine the answers that have been made.

Test result of the problem solving ability of FD subjects at the Looking Back stage are presented in the following Figure 5.

Thus the problem-solving ability of subjects with field dependent cognitive styles in general learning with the discovery learning model can be presented in Table 2 below.

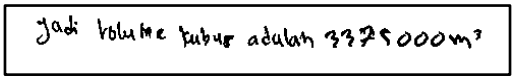

Figure 5. Looking back result of FD

Table 2. General Subject Field Dependent Problem-Solving Abilities

Indicator	Field dependent
Understand the problem	Able to understand the problem properly by writing down information that is known and asked correctly but using a language that resembles a problem
Devising a plan	Able to plan a solution by writing the formula correctly and completely on most of the questions but in other questions it is not answered with a complete formula Able to draw space in most of the problems faced
Carrying out the plan	Able to carry out the planning correctly in most of the questions while in the other questions that require analysis they are not able to answer it correctly
Looking back	Able to conclude the final answer Being able to re-examine the problem but not be able to fix it

Student Problem Solving Ability Using Discovery Learning Models

To find out the classical mastery of student learning in solving mathematical problems with discovery learning models, researchers conducted normality tests and completeness tests. The normality test used in this data analysis is the Kolmogorov-smirnov test with IBM SPSS Statistics software. Output result can be seen in Table 3 below.

Table 3. Result of The Normality Test

N		23
Normal parameters[a,b]	Mean	77.3913
	Std. deviation	8.90219
Most extreme differences	Absolute	.188
	Positive	.188
	Negative	-.160
Kolmogorov-smirnov Z		.902
Asymp. sig. (2-tailed)		.390

Based on Table 1 obtained the value of sig = 0.390 > 0.05, then H_0 is accepted, it means that the data is normally distributed.

Whereas for classical completeness obtained the value of z_{value} = 2.287 is greater than z_{table} which is 1.645 with a significance level of 5%. Because $z_{value} > z_{table}$ then H_0 is rejected. So it can be concluded that the mastery of classical learning is achieved in discovery learning of

VIIIB class MTs Nahdlatusshaufiah learning model.

CONCLUSION

The conclusions from this study are In solving the problem with Polya's step, the subject field dependent is able to understand the problem but uses a language that resembles the problem, the subject is unable to devise a plan solution on a particular problem that requires deeper analysis, the subject is unable to carry out the plan properly on certain questions that require more analysis in and the subject look back the answer but cannot correct the mistake. Thus the subject field dependent no one gets the maximum value from the whole question and learning the discovery learning model can achieve classical completeness in solving mathematical problems.

REFERENCES

Alifani, S., Suyitno, H., & Supriyadi, S. (2018). Mathematical Problem Solving Abilities Viewed by Intelligence Quotient and Gender Grade 5th. *Journal of Primary Education*, 7(1), 81-87. https://journal.unnes.ac.id/sju/index.php/jpe/article/view/21407

Al-Salameh, E. M. (2011). A Study of Al-Balqa' Applied University Students Cognitive Style. *International Education Studies*, 4(3), 189-193. https://eric.ed.gov/?id=EJ1066520

Anderson, J. (2009). Mathematics Curriculum Development and The Role of Problem Solving. *Prosiding*. Australian Curriculum Studies Association. http://www.acsa.edu.au/pages/images/judy%20anderson%20-%20mathematics%20curriculum%20development.pdf

Anthycamurty, R. C. C., Mardiyana & Saputro. (2017). Analysis of Problem Solving in Terms of Cognitive Style. *International Conference on Mathematics, Science and Education*, 98, 1-4 http://iopscience.iop.org/article/10.1088/1742-6596/983/1/012146/pdf

Apriandinata, I. (2016). Penerapan Metode *Discovery Learning* untuk Meningkatkan Kemampuan Pemecahan Masalah dan Komunikasi Matematik serta Dampaknya terhadap Kemandirian Belajar Siswa SMA. *Thesis*. Bandung: Universitas Pasudan.

Estiwi, E., Raharjo, T. J., & Syamwil, R. (2015). Pengembangan Model Pembelajaran Tematik Berbasis *Discovery Learning* untuk Memperkenalkan Konsep Sains. *Journal of Primary Education*, 4(1), 10-18 https://journal.unnes.ac.id/sju/index.php/jpe/article/view/6916

Geni, P. R. L & Hidayah, I. (2017). Kemampuan pemecahan Masalah Siswa pada pembelajaran Problem Based Learning Bernuansa Etnomatematika Ditinjau dari Gaya Kognitif. *Unnes Journal of Mathematics Research*, 6(1), 11-17. https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/17232

Huda, W. N., Suyitno, & Wiyanto. (2017). Analysis of Mathematical Problem Solving Abilities in Terms of Students' Motivation and Learning Styles. *Journal of Primary Education*, 6(3), 209-217. https://journal.unnes.ac.id/sju/index.php/jpe/article/view/21069

Lintang, A. C., Masrukan., & Wardani, S. (2017). PBL dengan APM untuk Meningkatkan Kemampuan Pemecahan Masalah dan Sikap Percaya Diri. *Journal of Primary Education*, 6(1), 27-34 https://journal.unnes.ac.id/sju/index.php/jpe/article/view/14510

Jena, P. C. (2014). Cognitive Styles and Problem Solving Ability of Under Graduate Student. *International Journal of Education and Psychological Research,* 3(2), 71-76. http://ijepr.org/doc/V3_Is2_June14/ij15.pdf

Komariah. (2015). Penerapan *Discovery Learning* untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis dan Representasi pada Siswa SMK. *Thesis*. Bandung: Universitas Pasudan.

Martyaningruma, I. D., Dewi, N. R., & Wuryantoa. (2018). The Enhancement of Students' Ability in Problem Solving and Mathematical Disposition Aspect Through Brain-Based Learning Model. *Unnes Journal of Mathematics Education Research*, 7(1), 31-38. https://journal.unnes.ac.id/sju/index.php/ujme/article/view/21854

Mashuri, Nitoviani, N. D., & Hendikawati, P. (2018). The Mathematical Problem Solving Ability of Student on Learning with Thinking Aloud Pair Problem Solving (TAPPS) Model in Term of

Student Learning Style. *Unnes Journal of Mathematics Education Research* ,7(1), 1-7. https://journal.unnes.ac.id/sju/index.php/ujme/article/view/18870

Masrukan, & Mufidah. (2017). Geometry Problem Solving Ability and Tolerance Character of Students 8th Grade with Assessment Project, *Journal of Physics: Conference Series*, 824(1). http://iopscience.iop.org/article/10.1088/1742-6596/824/1/012046

Mawaddah, N., Kartono., & Suyitno, H. (2015). Model Pembelajaran Discovery Learning dengan Pendekatan Metakognitif untuk Meningkatkan Metakognisi Dan Kemampuan Berpikir Kreatif Matematis. *Unnes Journal of Mathematics Education Research*, 4(1), 10-17. https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/6901

OECD. (2015). PISA 2015 Result in Focus. https://www.oecd.org/pisa/pisa-2015-result-in-focus.pdf

Prabawa, E. A. & Zaenuri. (2017). Analisis Kemampuan Pemecahan Masalah Ditinjau dari Gaya Kognitif Siswa pada Model Project Based Learning Bernuansa Etnomatematika. *Unnes Journal of Mathematics Education Research*, 6(1), 120-129. https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/18426

Saracho, O. N. (1997). *Teacher's and Students' Cognitive Styles in Early Childhood Education*. London: Greenwood Publishing Group.

Shi, C. (2011). A Study of the Relationship between Cognitive Styles and Learning Strategie. *Higher Education Studies*, 1(1), 20-26. https://eric.ed.gov/?id=EJ1080917

Sunandar, M., Zaenuri., & Dwidayati, N. (2018). Mathematical Mathematical Problem Solving Ability of Vocational School Students on Problem Based Learning Model Nuanced Ethnomatematics Reviewed From Adversity Quotient. *Unnes Journal of Mathematics Education Research*, 7(1), 1-8. https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/21277

Ulya, H., Kartono., & Retnoningsih, A. (2014). Analysis of Mathematics Problem Solving Ability of Junior High School Students Viewed From Students' Cognitive Style. *International Journal of Education and Research,* 2(10), 577-582. http://www.ijern.com/journal/2014/October-2014/45.pdf

Vendiagrys, L., Junaedi, I., & Masrukan. (2015). Analisis Kemampuan Pemecahan Masalah Matematika Soal Setipe TIMSS Berdasarkan Gaya Kognitif Siswa pada Pembelajaran Model Problem Based Learning. *Unnes Journal of Mathematics Education Research*, 4(1). https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/6905

Riau, S. B., & Junaedi, I. (2017). Analisis Kemampuan Pemecahan Masalah Matematik Siswa Kelas VII Berdasarkan Gaya Belajar pada Pembelajaran PBL. *Unnes Journal of Mathematics Education Research*, 5(2), 166-177. https://journal.unnes.ac.id/sju/index.php/ujmer/article/view/12933

Heriyanto. (2018). Upaya Meningkatkan Prestasi Belajar Matematika Peserta Didik melalui Metode *Discovery Learning* berbantuan Blok Aljabar Materi Operasi Hitung Aljabar. *Jurnal Profesi Keguruan,* 4(1), 28-36. https://journal.unnes.ac.id/nju/index.php/jpk/article/view/13994

Mulbar, U., Rahman, A., & Ahmar, A. S. (2017). Analysis of The Ability in Mathematical Problem-Solving Based on SOLO Taxonomy and Cognitive Style. *World Transactions on Engineering and Technology Education*, 15(1), 68-73. https://www.researchgate.net/publication/315379118_Analysis_of_the_ability_in_mathematical_problem-solving_based_on_SOLO_taxonomy_and_cognitive_style

Saxena, S., & Jain, R. K. (2014). Impact of *Cognitive style* On *Problem solving* Ability among Undergraduates. *International Journal of Academic Research in Psychology*, 1(1), 6-10. https://www.researchgate.net/publication/287697212_Impact_of_Cognitive_Style_on_Problem_solving_Ability_among_Undergraduates

Sulistiani, E., Waluya, S. B., & Masrukan. (2017). The Analysis of Student's Critical Thinking Ability on Discovery Learning by Using Hand on Activity Based on The Curiosity. *Journal of Physics*: Conf. Series, 983(1). http://iopscience.iop.org/article/10.1088/1742-6596/983/1/012134/pdf

Surya, E., Putri, F. A. & Mukhtar. (2017). Improving Mathematical Problem-Solving Ability and Self-Confidence of High School Students through Contextual Learning Model. *Journal on Mathematics Education*, 8(1), 85-94. https://eric.ed.gov/?id=EJ1173627