

LITERATURE REVIEW: MATHEMATICS UNDERSTANDING REVIEWED FROM SELF REGULATED LEARNING IN STUDENTS

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ABSTRACT

The low mathematical understanding ability in learning mathematics is due to the lack of learning independence in students who always solve problems according to the example problems given by the teacher, but when given different problems students will experience difficulties, causing students to cheat and not want to find solutions to these problems. This study aims to analyze mathematical understanding in terms of self-regulated learning in students. This study uses literature review data collection in this study by examining, exploring from articles, data sources and other information that is considered relevant to the study. Based on the results of the literature review that has been examined by researchers, it is found that self-regulated learning is an important aspect that can support learning activities so that students have mathematical understanding abilities in accordance with the main objectives in studying mathematics. So it is concluded that self-regulated learning becomes the effectiveness of students to be achieved in improving mathematical understanding skills in mathematics learning. If students have high self-regulated learning, learning that occurs without coercion, students are aware of the goals to be achieved and are able to solve problems with the right concepts without help from others.

Keywords: Mathematics; Mathematical Understanding; Self-Regulated Learning.

1. Introduction

Education is a tool in the learning process that plays a very important role in creating a generation that is able to keep up with the times (Ilham, 2019). Without education, it is absolutely impossible for humans to live and develop in line with their aspirations (ideals) to progress and develop. Thus, education should be a focus that focuses on the development of science and technology and basic values which will later be able to increase quality graduates in every learning, especially in learning mathematics (Astuti & Dewi, 2021).

Mathematics is one of the fields of study taught in elementary school and one of the lessons that is closely related to real life. There are quite a few things or problems around us that require mathematical knowledge. The main goal in studying mathematics is so that students can understand mathematical concepts (Greetings, 2020). Because of its important role, mathematics is taught in every educational unit in class with more teaching hours compared to other subjects (Sunismi, 20018).

Kurino (2020) revealed that in the mathematics learning process students must have an understanding of the concept of the material. Understanding concepts in the mathematics learning process is the ability to understand mathematics which is an important ability and must be possessed by students (Sumarni et al., 2018).

Mathematical understanding is translated from the term mathematical understanding. Mathematical understanding is defined as an ability that relates to mathematical notations and symbols that are relevant to the loading of mathematical ideas and combines them into a series of logical reasoning (Pramuditya et al., 2019). Mathematical understanding is a very important mathematical ability that students must have in the mathematics learning process (Ridia & Afriansyah, 2019). In learning mathematics, students are required to have a mathematical understanding first so that it is easy to solve problems so that students are also able to apply this learning to the real world in accordance with the objectives of learning mathematics (Yanti et

al., 2019). Developing mathematical understanding has many benefits for students in various directions (P. Lestari & Romdiani, 2018). Davita et al., (2020) revealed that the ability to understand mathematics can be seen as one of the processes and outcomes of student learning.

However, according to Anike & Handoko (2018) The main problem in learning in formal education (school) is the low absorption capacity of students in understanding abilities. Understanding is also a basic ability in every learning process, including mathematics. Students cannot start solving problems without understanding the concepts they are learning first (Risnawati, Zubaidah, et al., 2018). Skemp (Sumarmo 1987: 24) distinguishes two types of understanding: (1) instrumental understanding which is defined as understanding by memorizing concepts without any relationship to other concepts, defining formulas, and carrying out algorithmic calculations; and (2) relational understanding, namely mutual understanding between concepts.

Abilities measured in mathematical understanding abilities include (1) procedural numeracy; (2) apply the formula directly; (3) apply a formula to a concept; (4) provide examples and non-examples; (5) distinguishing two things with reason; (6) estimates and estimates with judgment. So basically mathematical problems require mathematical understanding abilities. However In the mathematics learning process, various problems are often encountered that can hinder students' understanding in mastering the material (Hanum et al., 2019).

The problems experienced by these students result in students' mathematical understanding abilities being relatively low. In fact, several previous studies found that students' understanding was still relatively low. This lack of understanding occurs because teachers focus more on the steps or procedures that students use to solve mathematical problems rather than the reasons they use these procedures and teachers only actively provide information and use one-way interactions in teaching (Maifi et al., 2021).

This is reinforced from the results of observations and interviews Kurino (2020) that in the mathematics learning process students tend to be passive because they are less involved in the learning process. Learning is less meaningful because the knowledge gained by students is only

limited to the material presented by the teacher. Apart from that, teachers also do not use appropriate learning models, the learning process is still conventional so learning is monotonous. As a result of this problem, there were only 6 students whose mathematical understanding was above the minimum completeness criteria (KKM) 70 out of a total of 26 students. Meanwhile, 20 students have not yet completed.

According to Ruqoyyah et al., (2020) Factors causing the decline in mathematics learning achievement include students from elementary to high school only learning arithmetic or simple arithmetic compared to understanding in-depth mathematical concepts. Besides that Arimurti et al., (2019) revealed that Most students still study mathematics material separately and do not understand how the concepts are related to the material they have studied. Therefore, understanding mathematics requires maximum effort so that students can understand well so that learning can be meaningful, considering that mathematics is a subject that is closely related to daily activities, in line with the opinion (Risnawati et al., 2018).

Apart from students' mathematical understanding abilities, they must also pay attention to their affective and psychomotor aspects. One of the affective sides is meant by changes in behavior that appear during the learning process. The effectiveness of students who want to be achieved in improving their mathematical abilities and understanding abilities is self-regulated learning, namely self-regulated learning (SRL).

Self regulated learning (SRL) is a behavior that is formed in students during the learning process. Students carry out learning activities without coercion, are aware of the learning objectives, and are able to solve problems based on appropriate concepts without the help of others (Marbun et al., 2021). Self regulated learning (SRL) is an important aspect to support the ongoing learning process, this is in line with opinion Granberg et al., (2021) that self-regulated learning (SRL) can be described as the main competency that the education system needs to strive to achieve in mathematics learning. The use of self-regulated learning (SRL) in elementary school students when learning mathematics in class influences the effectiveness of using strategies, methods, techniques and materials, and

impacts their ability to make effective and appropriate decisions (Çetin, 2022). In research Jusra et al., (2022) said that students have three categories of self-regulated learning, namely high, medium and low.

Systematic Literature Review (SLR) is a review to find out what is already known from previous research about a particular phenomenon, subject or topic (Van Klaveren & De Wolf, 2019). There are several objectives in SLR research, including identifying, reviewing, evaluating and interpreting all available research on the topic area of interesting phenomena as well as certain relevant research questions (Triandini et al., 2019). Seeing the importance of students' mathematical understanding in learning, therefore, researchers are interested in conducting a literature study regarding mathematical understanding in terms of students' self-regulated learning. So it can be used as a guide for researchers regarding students' mathematical understanding and further research.

This research aims to conduct a literature review related to the results of mathematical understanding in terms of self-regulated learning in students and the indicators that influence it based on empirical studies in the last five years. Therefore, an important stage of a systematic literature review is collecting data in the form of research results on mathematical understanding and self-regulated learning on supporting aspects.

2. Research Methods

The method used in this research is *Systematic Literature Review* (SLR). This research method is carried out by identifying, reviewing, evaluating and interpreting all available research. In line with research (Triandini et al., 2019). The aim of this library research is to obtain a theoretical basis to be able to support learning based on the problems observed, as well as uncover theories related to these problems. The initial step in this research is to collect and study data from the results of the same research as previous researchers. Apart from that, adding data through related journal articles to support this research. After collecting and researching the data, continue processing the data. Then use descriptive analysis to analyze the data.

Based on these stages, the researcher looked for articles with the keywords mathematical understanding and self-regulated learning in students, then the articles were selected and evaluated according to predetermined criteria, then the data that had been collected was analyzed and conclusions were drawn. Articles used in research are sourced and indexed in Scopus, SINTA, Google Scholar, Garuda, Eric etc. published in the 2017 – 2023 period.

3. Results and Discussion

This research presents a systematic review of mathematical understanding in terms of *Self Regulated Learning* (SRL). Because in learning mathematics it is important for an educator to pay attention to things related to students' academic success. Mathematical understanding and SRL are two important things that a student must have so that the learning process can run well and obtain maximum results.

The initial database search strategy yielded 540 articles. There were 314 articles produced in the initial screening of the database. The 137 articles deemed eligible were analyzed further and 10 articles were determined to be relevant for the systematic review in this study. The flow diagram of the article review process included in the results of this research is as follows.

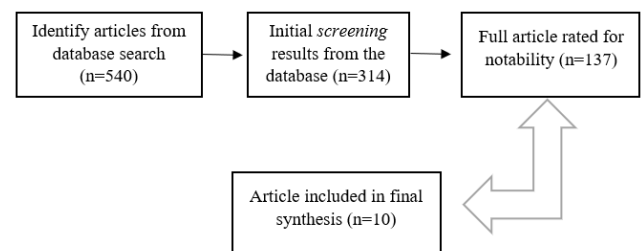


Figure 1. Article Review Process Flowchart

Figure 1 shows that there are 10 articles that are relevant to the systematic review of this research. These articles will be reviewed based on stages created objectively to find answers to the review questions that have been formulated. The resulting research data is an analysis and summary of the articles documented based on the previous flow diagram.

Table 1. Study Results Related to Articles on Mathematical Understanding in terms of *Self Regulated Learning* (SRL)

No	Author & Year	Journal Name & Index	Title	Purpose	Findings
1	(Alfiani & Firmansyah, 2022)	Journal of Mathematics Education -SINTA 3	Analysis of the mathematical comprehension ability of junior high school students in terms of learning interest	To describe and analyze the mathematical comprehension ability of junior high school students Judging from the interest in learning in solving math problems.	Shows that the mathematical comprehension ability of junior high school students is included in the low group while the data on student learning interest is included in the good group. This shows that students who have a high interest in learning will have higher mathematical understanding abilities.
2	(Bevan & Capraro, 2021)	International Electronic Journal of Mathematics Education -ERIC	Posing Creative Problems: A Study of Elementary Students' Mathematics Understanding	To understand how problem-submission interventions can improve students' mathematical comprehension and ability to propose solvable problems.	Problem submission activities can have a positive impact on students' mathematical understanding while providing freedom of expression.
3	(Robbany Arham, 2022)	Journal of Didactical Mathematics -SINTA 5	Analysis of Students' Mathematical Comprehension Ability in Solving Basic Math Problems	To analyze students' mathematical comprehension ability in solving fractional and decimal material problems.	The average percentage of skills from students' mathematical comprehension ability is 35%, the average of these skills is categorized as low. The conclusion obtained in this study is that students' mathematical understanding ability on fractional and decimal material is still very low.
4	(Ramadan & Diana, 2022)	Range: Journal of Mathematics Education -SINTA 4	Analysis of Mathematical and Metacognitive Comprehension Ability Level of Junior High School Students	To determine the level of mathematical comprehension ability and metacognitive level in junior high school students.	The results of this study (1) the mathematical comprehension ability of 32 students had an average with very less criteria; (2) only students who have special and excellent criteria have metacognitive level above 1, while good to very less metacognitive criteria have level 1; (3) Metacognitive can be a solution to improve students' mathematical comprehension skills.
5	(Ghasani et al., 2019)	Plusminus: Journal of Mathematics Education -SINTA 3	Student Learning Independence in Mathematics Learning Using the Independent Curriculum	To analyze the independence of student learning in mathematics learning using an independent curriculum at one of Bandung Junior High School in Bandung City.	Shows that students' independence in learning mathematics is still low. New methods or strategies are needed that can increase student learning independence in mathematics learning
6	(Wahyuningih, 2023)	Journal of Education and Counseling -Google Scholar	Mathematical Problem Solving Ability Reviewed from Student Self Regulated Learning	To describe the ability to solve mathematical problems in terms of the level of student self-regulated learning.	1) Students with high self-regulated learning category have good problem-solving skills, while students with self-regulated learning category who are currently having good problem-solving skills, and students with low self-regulated learning category have poor problem-solving skills; 2) Students with high self-regulated learning category are able to run all four stages of problem solving very well, 3) Students with moderate self-

					regulated learning category are able to run two or three of the four stages of problem solving and 4) Students with low self-regulated learning category are only able to run one or two of the four stages of problem solving well
7	(Pasha & Aini, 2022)	Theorem: Mathematical Theory and Research -Garuda -Google Scholar -SINTA	Description of the ability to understand mathematical concepts in terms of self-regulated learning	To analyze the ability to understand mathematical concepts in algebraic form material in terms of self-regulated learning.	The results of this study show that students 1 and 2 are only able to meet three indicators, namely restating a concept, presenting concepts in various ways for mathematical representation and using, utilizing, also choosing certain procedures or operations as well as applying concepts or problem solving algorithms while students 3 and 4 are only able to meet one indicator, namely restating a concept. So it can be concluded that the ability to understand mathematical concepts of algebraic forms in terms of self-regulated learning is relatively low. This can be reinforced by the results of interviews with students who show that the three students have low self-regulated learning abilities.
8	(Marlina et al., 2023)	PRISMA -SINTA -Google Scholar -Garuda	Analysis of Students' Low Mathematical Understanding Reviewed from Self-Regulated Learning During the Covid-19 Pandemic	To find out the cause of students' low understanding of mathematical concepts, it was reviewed from self-regulated learning during the COVID-19 pandemic at SMK Negeri 1 Serang City.	Finding that students' self-regulation learning simultaneously has a significant effect on students' understanding of mathematical concepts. Motivational and behavioral indicators are known to have a significant contribution, whereas metacognitive do not contribute to students' understanding of mathematical concepts.
9	(W. D. Lestari et al., 2020)	Journal of Physics: Conference Series -Scopus	What is the relationship between self-regulated learning and students' mathematical understanding in online lectures during the covid-19 pandemic?	To find out the relationship between self-regulated learning and mathematical understanding online during the COVID-19 pandemic.	That there is a directly proportional relationship between self-regulation of learning and students' mathematical understanding. Based on these findings, it is necessary to apply self-regulated learning strategies in learning to improve students' mathematical understanding.
10	(Jusra et al., 2022)	Education Journal of Mathematics Education -Google Scholar	Analysis of Mathematical Comprehension Ability Reviewed from Self-Regulated Learning	to analyze mathematical comprehension skills in terms of Self-Regulated Learning. This is based on students who have not been able to independently identify, recognize, detail and compile some questions that will arise in the problem.	that learners have three categories of Self-Regulated Learning namely high, medium and low. Each question states an indicator of mathematical comprehension ability, but only the high Self-Regulated Learning category meets all indicators of mathematical comprehension ability. Because subjects in the high Self-Regulated Learning category can understand all the questions that have been asked. As for students in the moderate Self-Regulated Learning category, they meet two indicators, namely; (1) students can define a concept in writing, (2) students can
					present a concept to a problem and convert it into another form of expression. For the low Self-Regulated Learning category, students do not meet two indicators of mathematical comprehension ability, only meet one indicator, namely; Can identify problems and determine the outcome of a problem.

Based on the research results listed in table 1. It shows that mathematical understanding in mathematics learning must be an important concern for educators, because remembering that mathematical concepts are really needed to be used in solving everyday real life problems (Sunismi & Setiawan, 2022).

However, the current situation is that students' mathematical understanding of fractions and decimals is still very low (Robbany Arham, 2022). In line with the research results Ramadhan & Diana (2022) which reveals that ability The mathematical understanding of 32 students was average with very poor criteria in solving problems involving their mathematical understanding. However, problem posing activities with simple concepts can have a positive impact on students' mathematical understanding while providing freedom of expression so that the mathematics learning process can be meaningful (Bevan & Capraro, 2021).

So that students do not feel forced or coerced when facing problems that involve mathematical understanding. Students who have a high interest in learning and learning independence in learning will have higher mathematical understanding abilities (Alfiani & Firmansyah, 2022). However, in research conducted by (Ghassani et al., 2019) And (Abror, 2022) shows that students' independence in mathematics learning is currently still low. So new methods or strategies are needed that can increase students' learning independence.

Independent learning or self-regulated learning is a behavior that is formed in students during the learning process. Students carry out learning activities without coercion, are aware of the learning objectives, and are able to solve problems based on appropriate concepts without the help of others (Marbun et al., 2021). In self-regulated learning there are 3 categories, namely high, medium and low, as is the case in research Wahyuningsih (2023) And Jusra et al., (2022) that students in the high self-regulated learning category have good problem solving abilities, while students in the medium self-regulated learning category have quite good problem solving abilities, while students in the low self-regulated learning category have poor problem solving abilities as well as mathematical understanding in students, each question states an indicator of mathematical understanding ability, but only the high self-regulated learning category

meets all indicators of mathematical understanding ability.

Meanwhile, research by Pasha & Aini (2022) revealed that the mathematical understanding ability of students who complete algebraic material in terms of self-regulated learning is relatively low. This can be strengthened by the results of interviews with students which show that the three students have low self-regulated learning abilities. Because this proves that students' self-regulated learning simultaneously has a significant effect on students' mathematical understanding (Marlina et al., 2023). In line with research WD Lestari et al., (2020) that there is a directly proportional relationship between self-regulated learning in learning and students' mathematical understanding. Based on these findings, it is necessary to implement self-regulated learning strategies to improve students' mathematical understanding. Therefore, it can be concluded that currently students' understanding of mathematics and self-regulated learning is still lacking but can be overcome with models or methods that can be used by teachers. So that mathematical understanding in terms of self-regulated learning in students influences and supports each other in learning to achieve student academic achievement. For example, if students have high levels of self-regulated learning, students' mathematical understanding can be said to meet the indicators of understanding.

4. Conclusions

Based on the results and discussion presented above, it can be concluded that mathematical understanding in terms of self-regulated learning (SRL) is important in learning. Where self-regulated learning is the effectiveness students want to achieve in improving mathematical understanding abilities in mathematics learning. If students have high self-regulated learning, learning occurs without coercion, and students are aware of the goals they want to achieve and are able to solve problems with the right concepts without help from other people, so that the impact on students' mathematical understanding also increases.

5. References

- Abror, M.H. (2022). Self-Regulated Learning on Student Mathematics Learning Outcomes. *Plusminus: Journal of Mathematics Education*, 2(2), 233–242. <https://doi.org/10.31980/plusminus.v2i2.1676>
- Alfiani, H., & Firmansyah, D. (2022). Analysis of Students' Mathematical Understanding Ability Judging from TIMSS Questions. *Dikdaya Scientific Journal*, 12(1), 55. <https://doi.org/10.33087/dikdaya.v12i1.274>
- Anike, A., & Handoko, H. (2018). Cognitive Profile of Students' Creative Thinking in Jigsaw Model Mathematics Learning Using the Discovery Learning Approach. *Eduma : Mathematics Education Learning and Teaching*, 7(1). <https://doi.org/10.24235/eduma.v7i1.2900>
- Arimurti, I., Praja, ES, & Muhtarullo, F. (2019). Discovery Learning Model-Based Module Design for Students' Mathematical Understanding Abilities. *Mosharafa: Journal of Mathematics Education*, 8(3), 459–470. <https://doi.org/10.31980/mosharafa.v8i3.459>
- Astuti, NRW, & Dewi, DA (2021). The Importance of Implementing Pancasila Values in Facing the Development of Science and Technology. *EduPsyCouns Journal: Journal of Education, Psychology and Counseling*, 3(1), 41–49.
- Bevan, D., & Capraro, M. M. (2021). Posing Creative Problems: A Study of Elementary Students' Mathematics Understanding. *International Electronic Journal of Mathematics Education*, 16(3), em0654. <https://doi.org/10.29333/iejme/11109>
- Çetin, B. (2022). Investigation of fourth grade primary school students' self-regulated learning strategies and successes in mathematics course in terms of socio-economic level. 15(1), 219–239.
- Davita, PWC, Nindiasari, H., & Mutaqin, A. (2020). The Influence of the Problem Based Learning Model Regarding Mathematical Understanding Abilities Judging from Students' Initial Mathematical Abilities. *TIRTAMATH: Journal of Mathematics Research and Teaching*, 2(2), 101. <https://doi.org/10.48181/tirtamath.v2i2.889>
- Ghassani, DA, Nursa'adah2, A., Septira3, F., Effendi4, M., Tatang, Herman5, & Aan Hasanah6. (2019). Student Learning Independence in Mathematics Learning. *Plusminus: Journal of Mathematics Education*, 2(1), 1214–1223.
- Granberg, C., Palm, T., & Palmberg, B. (2021). A case study of a formative assessment practice and the effects on students' self-regulated learning. *Studies in Educational Evaluation*, 68(November 2020). <https://doi.org/10.1016/j.stueduc.2020.100955>
- Hanum, L., Istikomah, DA, & Jana, P. (2019). Comparison of the Effectiveness of Problem Based Learning (Pbl) and Discovery Learning (DL) Learning Models in View of Problem Solving Ability. *Eduma : Mathematics Education Learning and Teaching*, 8(1), 67–74. <https://doi.org/10.24235/eduma.v8i1.3203>
- Ilham, D. (2019). Initiating Value Education in the National Education System. *Didactics: Journal of Education*, 8(3), 109–122. <https://jurnaldidaktika.org/contents/article/view/73>
- Jusra, H., Liddini, U.H., & Mathematics, P. (2022). Analysis of Mathematical Understanding Abilities in Terms of Self-Regulated Learning Analysis of Mathematical Understanding Abilities in Terms of Self-Regulated Learning. 12(1).
- Kurino, Y. D. (2020). Implementation of the Problem Based Learning Model to Improve Students' Mathematical Understanding in Mathematics Learning in Elementary Schools. *THEOREMS (The Original Research of Mathematics) Journal*, 5(1), 86. <https://doi.org/10.31949/th.v5i1.2260>
- Lestari, P., & Romdiani, NS (2018). Effectiveness of Learning Using Card Media to Improve Students' Mathematical Understanding Ability. *Gantang Journal*, 3(1), 17–23. <https://doi.org/10.31629/jg.v3i1.304>
- Lestari, WD, Aisah, LS, & Nurafifah, L. (2020). What is the relationship between self-regulated learning and students' mathematical understanding in online lectures during the covid-19 pandemic? *Journal of Physics: Conference Series*, 1657(1), 8–14. <https://doi.org/10.1088/1742-6596/1657/1/012065>
- Maifi, YK, Anwar, & Ahmad, A. (2021). Students' understanding of mathematical concepts and their self-confidence through a discovery learning model. *Journal of Physics: Conference Series*, 1882(1). <https://doi.org/10.1088/1742-6596/1882/1/012081>
- Marbun, O., Rohaeti, E.E., & Maya, R. (2021). Mathematical Understanding Ability And Self Regulated Learning Of Elementary School Students Using Snowball Throwing

- Approach. (Jiml) Journal of ..., 4(1), 22–30.
<https://www.journal.ikipsiliwangi.ac.id/index.php/jiml/article/view/6991%0Ahttps://www.journal.ikipsiliwangi.ac.id/index.php/jiml/article/viewFile/6991/2419>
- Marlina, M., Junedi, B., Kiawati, ES, & Setianti, S. (2023). Analysis of Students' Low Mathematical Understanding Viewed from Self-Regulated Learning During the Covid-19 Pandemic. *Prisma*, 12(1), 189.
<https://doi.org/10.35194/jp.v12i1.2588>
- Pramuditya, S.A., Rozak, A., & Rukmana, D. (2019). Solid geometry educational game based on student's mathematical understanding. *Journal of Physics: Conference Series*, 1360(1).
<https://doi.org/10.1088/1742-6596/1360/1/012013>
- Ramadhan, MR, & Diana, HA (2022). Analysis of the Mathematical Understanding and Metacognitive Ability Levels of Middle School Students. *RANGE: Journal of Mathematics Education*, 4(1), 13–27.
<https://doi.org/10.32938/jpm.v4i1.2221>
- Ridia, NS, & Afriansyah, EA (2019). Comparison of Students' Mathematical Understanding Ability through Auditory Intellectual Repetition and Student Teams Achievement Division. *Mosharafa: Journal of Mathematics Education*, 8(3), 515–526.
<https://doi.org/10.31980/mosharafa.v8i3.509>
- Risnawati, Amir, Z., & Sari, N. (2018). The development of learning media based on visual, auditory, and kinesthetic (VAK) approach to facilitate students' mathematical understanding abilities. *Journal of Physics: Conference Series*, 1028(1).
<https://doi.org/10.1088/1742-6596/1028/1/012129>
- Risnawati, Zubaidah, A., & Sari, N. (2018). Development of learning media based on Development of learning media based on visual, auditory and kinesthetic (VAK) approaches to facilitate students' mathematical understanding abilities.
- Robbany Arham, H. (2022). Analysis of Students' Mathematical Understanding Ability in Solving Basic Mathematics Problems. *Didactical Mathematics*, 4(2), 314–322.
<https://doi.org/10.31949/dm.v4i2.2148>
- Ruqoyyah, S., Murni, S., & Wijaya, TT (2020). The Effect of VBA for Microsoft Excel as Teaching Material to Improve Prospective Elementary School Teachers' Mathematical Conceptual Understanding. *Elementary School Pulpit*, 7(2), 251–268.
<https://doi.org/10.17509/mimbar-sd.v7i2.26494>
- Salam, M. (2020). Effectiveness of integrative learning models in improving understanding of mathematical concepts. *Journal for the Education of Gifted Young Scientists*, 8(3), 1005–1014.
<https://doi.org/10.17478/jegys.666875>
- Sumarni, S., Darhim, D., Fatimah, S., Priatna, N., Anjelita, A., & Taufik, A. (2018). The students' mathematical concept understanding ability through cooperative learning type jigsaw assisted visual media. *Journal of Physics: Conference Series*, 1132(1).
<https://doi.org/10.1088/1742-6596/1132/1/012051>
- Sunismi. (20018). DEVELOPING GUIDED DISCOVERY LEARNING MATERIALS USING MATHEMATICS MOBILE LEARNING APPLICATION AS AN ALTERNATIVE MEDIA FOR THE STUDENTS CALCULUS II. 1, 1–14.
- Sunismi, S., & Setiawan, YE (2022). The effectiveness of IDEA learning model in mathematics concept understanding. *Journal of Education and Learning (EduLearn)*, 16(1), 43–50.
<https://doi.org/10.11591/edulearn.v16i1.20317>
- Triandini, E., Jayanatha, S., Indrawan, A., Werla Putra, G., & Iswara, B. (2019). Systematic Literature Review Method for Identifying Platforms and Methods for Information System Development in Indonesia. *Indonesian Journal of Information Systems*, 1(2), 63.
- Van Klaveren, C., & De Wolf, I. (2019). Systematic reviews in education research: When do effect studies provide evidence? *Contemporary Economic Perspectives in Education*, January, 11–33.
- Wahyuningsih, BY (2023). Mathematical Problem Solving Ability Judging from Students' Self Regulated Learning. *Journal of Education and Counseling*, 5(1), 2762–2771.
<http://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/11401>
- Widiani, Y. (2019). Mathematics and the environment. *Journal of Equation: Theory and Research in Mathematics Education*,

- 2(1), 39.
<https://doi.org/10.29300/equation.v2i1.2309>
Yanti, N., Sofiyan, Ramadhani, D., & Putra, and
A. (2019). Analysis of Students'
Understanding of Mathematical Concepts in
Grade V Scale Material at SD Negeri 2
Langsa for the 2019/2019 Academic Year.
Journal of Basic Education Studies, 2(2), 90–
102.
[http://jurnal.unipasby.ac.id/index.php/buana
_matematika/article/view/2442](http://jurnal.unipasby.ac.id/index.php/buana_matematika/article/view/2442)