ANALYSIS OF MATHEMATICAL LITERACY ABILITY IN TERMS OF SELF-EFFICACY HIGH AND LOW

Busnawir BUSNAWIR
Dr., Mathematics Education, Halu Oleo University, Kendari, Indonesia
ORCID: https://orcid.org/0000-0001-7010-0857
busna01@yahoo.com

La MISU
Dr., Mathematics Education, Halu Oleo University, Kendari, Indonesia
ORCID: http://orcid.org/000-0002-4203-6242
lamisu_fkip@uho.ac.id

Muhammad SUDIA
Dr., Mathematics Education, Halu Oleo University, Kendari, Indonesia
ORCID: https://orcid.org/0000-0001-6904-726X
muhammad_matematika@yahoo.com

Muhammad IDRIS
Gruduate Program, Halu Oleo University, Kendari, Indonesia
ORCID: https://orcid.org/0000-0002-2286-8607
idris.3009@gmail.com

Sadikin SADIKIN
Gruduate Program, Halu Oleo University; Kendari, Indonesia
ORCID: https://orcid.org/0000-0001-7085-3883
sadikin_pmat13@yahoo.com

Abstract

The purpose of this study was to describe mathematical literacy skills in terms of high self-efficacy and low self-efficacy. This research is an exploratory research using a qualitative approach which is carried out on grade IX students of SMP Negeri 1 Wawonii Barat. The research data were collected using a mathematics literacy ability test and a self-efficacy questionnaire. The research subjects were divided into two categories, namely subjects with high self-efficacy and low self-efficacy categories. Data were analyzed using three stages, namely data reduction, data presentation, and drawing conclusions. The results of this study indicate that students with high self-efficacy have been able to solve math problems at all stages in the process literacy component even though they are not perfect, while students with low efficacy have not been able to solve math problems at all stages in this component. In the content literacy component, students with high self-efficacy and students with low self-efficacy have not been able to solve math problems well at all stages in this component. In the context literacy component, students with high self-efficacy and students with low self-efficacy have been able to solve math problems well through all the stages in this component**.**

Keywords: Mathematical literacy, self-efficacy, math problems.

INTRODUCTION

Indonesian students' mathematical literacy is still ranked relatively low based on the results of the 2018 PISA study. This causes the mathematical literacy of Indonesian students to get attention and be reviewed (OECD, 2019). Mathematical literacy in mathematics learning is a standard that must be mastered by students in order to develop and improve the competence of students' mathematical skills.

Mathematical literacy is the individual's ability to formulate, use, and interpret mathematics in various contexts which include the use of concepts, procedures, facts in mathematics, which can develop abilities and confidence, to think numerically and spatially in interpreting and analyzing, and solving problems that encountered in everyday life critically so that they are better prepared to face life's challenges (Stecey & Tuner, 2015).

In general, Literacy has four aspects, namely reading, writing, speaking, and listening or listening (Woolley, 2014). Reading is an active process to understand the meaning of language in the form of letter symbols that are systematically arranged to become a foundation in the field of education (Woolley 2014; Simmons & Kameenui 1998). Reading mathematics is a series of individual activities in arranging words or sentences to understand an explanation in a math problem and interpret what has been read.

Writing is a combination of several early reading skills that involve a number of cognitive and physical processes that function simultaneously (Barone & Mallette, 2013; Woolley, 2014). Writing is a form of student communication to convey ideas, ideas, concepts, and thoughts to others so that others will know about it (Astuti & Mustadi, 2014). Writing mathematics must begin with an understanding of mathematical concepts that are organized systematically, logically, and hierarchically from the simplest to the complex (Rumasoreng & Sugiman, 2014).

Mathematical literacy is related to the ability to apply mathematics to everyday problems. Therefore, the process of solving mathematical problems in everyday life is an important component of mathematical literacy. The Problem solving ability is an individual's ability at high-level cognitive aspects that require more basic skills in order to deal with new situations (Singh, 2009; Savage, 2012). More basic skills will help students solve problems step by step in understanding and solving existing math problems, and can help improve the ability to plan, organize, and foster self-discipline (Shirali, 2014; NCTM 1989; Siegle, 2017).

Mathematical literacy includes 4 main components, namely exploring, connecting, reasoning logically, and using various mathematical methods. This main component is used to facilitate daily problem solving while at the same time developing math skills (NCTM, 2000). The measurement of mathematical literacy involves three major components of the mathematical domain, namely content, context, and competence. Content aspects consist of the domains of quantity, uncertainty, and data, changes and relationships, as well as space and form; context aspects consist of personal context, social context, work context, and scientific context; Competency aspects consist of reproduction process competence, connection process competence and reflection process competence (OECD, 2013). Mathematical literacy is knowledge in understanding and applying mathematics in everyday life. Mathematical literacy people are able to estimate, interpret data, solve daily problems, reason in numerical, graphical, and geometric situations, and communicate with mathematics (Ojose, 2011).

The facts show that mathematics literacy in Indonesia is still relatively low. Data obtained from the results of The Program for International Student Assessment (PISA) in 2012, 2015, and 2018, Indonesia obtained a consecutive score of 375, 386, and 379 with an average score of 500 participating countries (OECD, 2013; OECD, 2016; OECD, 2019). The survey results show that the acquisition of high mathematics literacy scores in Indonesia is only achieved by students who are at a high level, but the scores of students at this high level are still relatively low when compared to other competing countries (OECD, 2016b).

Good mathematics learning, besides being able to develop mathematical literacy skills, must also pay attention to psychological problems in students. Positive psychological aspects can affect mathematical literacy skills, one of which is self-efficacy. Self-efficacy is the most important and effective part of the attitude that plays a role in increasing student academic achievement (Azar, 2013). In particular, De Lange (2006) states that self-efficacy is one of the attitudinal and emotional factors as an important prerequisite for mathematical literacy. Student self-efficacy is one of the components in the PISA study (OECD, 2016a). Self-efficacy has an important role related to beliefs that have an impact on the implementation of actions and decision-making for each individual. The greater the

level of self-efficacy of a person, the greater will be an effort of persistence and flexibility. And if a behavior is rooted in belief then they can achieve the expected results (Hidayat, 2011).

Bandura (1997) explains that self-efficacy is an individual's belief in his ability to organize and complete a task required to achieve certain results. Individuals with weak self-efficacy are easily defeated by difficult experiences, while individuals who have strong self-efficacy in competence will maintain their business even though they experience difficulties. Pajares and Miller (1994) state that self-efficacy is an assessment of self-competence in performing a task in a specific context. Self-efficacy is defined as a person's ability to complete a number of tasks successfully. Carmichael *et al*. (2010) stated that students who have high self-efficacy will have high confidence in following the learning process so that the assignment given by the teacher can be done well.

The description that has been stated means that, Self Efficacy plays an important role in determining a student's success in education because it becomes the basis for taking action when facing a problem (Kusaeri, 2011). Self Efficacy is also a factor that influences student performance in achieving certain learning goals (Robbins, 2003). In terms of academic problems, self-efficacy also greatly determines academic achievement because it can increase student confidence in solving problems (Schunk, 1991).

There are three dimensions of self-efficacy that are used as a basis for measurement, namely the dimensions of magnitude, strength, and generality. The dimension of magnitude relates to the level of difficulty of a task that a person believes is capable of completing the task. If individuals are faced with problems or tasks that are arranged according to a certain level of difficulty, the individual's self-efficacy will help solve according to the limits of their ability to meet the required behavior demands. The dimension of strength relates to the level of strength or weakness of an individual's belief about his or her abilities. Individuals with strong self-efficacy regarding their abilities tend to never give up and are resilient in increasing their business despite facing obstacles. The dimension of generality relates to the breadth of the task field that a person believes to be able to do well (Bandura, 1997).

Based on the description above, it provides an illustration that self-efficacy can affect students' ability to solve mathematical problems related to mathematical literacy, so that it becomes one of the factors that can be used to predict academic success. This is supported by the results of Susilowati's (2018) research which shows that self-efficacy has an influence on mathematical literacy skills has a positive and significant relationship to scientific literacy. Likewise, the results of Arsidaryani's (2017) study show that mathematical literacy has a significant relationship with mathematical beliefs.

The results of Farida's research (2018) found that students' mathematical literacy skills in terms of gender differences were low; there was no difference in mathematical literacy skills between male students and female students in the content literacy and context literacy components. The results of Rakib's research (2018) found that students' mathematical literacy skills were still very low in the literacy components of spatial content, form, and uncertainty content. Students are only able to solve math problems in general and personal contexts. Students are also still lacking in solving mathematical problems in the context of representational competence, competence in using symbols, formal language, and use of operations, reasoning and arguments. The results of the survey by Mahdiansyah & Rahmawati (2014) concluded that the mathematical literacy skills of Indonesian students in terms of content and context domains are still relatively low, while in terms of the process domain it has not been carried out in depth, so further studies are needed.

Based on preliminary activities in the form of surveys and interviews with teachers and students at the research location, it was obtained data that students' mathematical literacy skills were still low and had never been done before regarding self-efficacy. In addition, it was found that students did not understand self-efficacy and the importance of mathematical literacy in the learning process. On the basis of this, a study was conducted to analyze mathematical literacy skills in relation to self-efficacy. Thus, the purpose of this study is to describe mathematical literacy skills in terms of high self-efficacy and low self-efficacy.

METHOD

Model of the Research

This research is exploratory research with a qualitative approach which is carried out in class IX of SMP Negeri 1 Wawonii Barat, Konawe Kepulauan Regency. The research was conducted from July – September 2020. The research subjects consisted of two students who were active in the odd semester of the 2020/2021 academic year. The selection of the two research subjects was based on the following criteria: (i) being 15 years old; (ii) has a high self-efficacy score and a low self-efficacy score, (iii) is able to communicate well, both orally and in writing.

Data Collection Tools

The instruments used in this study consisted of the main instruments and the auxiliary instruments. The main instrument is the researcher himself, while there are three kinds of assistive instruments, namely a self-efficacy questionnaire, a math literacy ability test, and an interview guide. The three assistive instruments were developed by researchers.

Mathematical literacy tests were developed by researchers based on literacy dimensions consisting of process, content, and context, which were adapted from PISA (2018). The Self-efficacy questionnaire consists of 28 statement items arranged in the form of a Likert scale, which consists of dimensions of magnitude, strength, and generality. The level of student self-efficacy in this study is categorized into two, namely high self-efficacy and low self-efficacy (Pudjiastuti, 2012). The self-efficacy questionnaire was validated with a reliability coefficient of .82.

The math literacy ability test used contains three components of mathematical literacy, namely a process literacy component, a content literacy component, and a context literacy component. Problem number one contains indicators of interpreting the meaning of a mathematical solution in the context of the problem (process literacy), numbers (content literacy), and personal (context literacy). Problem number two contains indicators of making mathematical models of problems in various contexts (process literacy), change and relationships (content literacy), and work (context literacy). Problem number three contains indicators using mathematical concepts to solve problems in various contexts (process literacy), uncertainty and data (content literacy), and social (context literacy). The validity of the test of mathematical literacy skills in this study uses content validity to see the accuracy of the test content with rational analysis through professional judgment.

The auxiliary instruments used in this study consisted of an interview guide and a voice recording device. Which is used to examine more deeply the mathematical literacy skills of students who have high self-efficacy and students who have low self-efficacy. The interview method used was semi-structured task-based with three considerations: (a) the interview questions were adapted to the form of problem-solving made by the students; (b) the questions posed contain the same subject matter for each student; (c) students who have difficulty with certain questions, are given simpler questions without eliminating the main problem.

Data Analysis

The data analysis in this study followed the analysis model of Miles, Huberman, and Saldana (2018) which consisted of (1) data condensation; (2) display data; and (3) drawing and verifying conclusion.

RESULT

Mathematical Literacy Ability Viewed From High Self-Efficacy

Mathematical literacy skills include process literacy components about Interpretation, content literacy components about Quantity, and context literacy components about Personal. The mathematical problems presented in this section relate to social arithmetic concepts. In order for the subject to solve this problem, the subject must be able to understand the concept of social arithmetic based on quantity content. The context of the problem presented in the questions relates to the personal activities of the subject which are personal. The dominant mathematical process in this problem is the interpreter so

that the subject is required to understand the problem, make solutions, and then make conclusions.

The result of a problem solving is that the subject has been able to interpret the meaning of a mathematical solution, but the process is incomplete and incomplete. In the process literacy component, the subject has not been able to interpret the meaning of a mathematical solution in the context of the problem. The subject also has not been able to explain the steps to solve the problem from the written answers. Then, the subject has not been able to modify the data or numbers needed to solve mathematical problems. In this case, the subject has not been able to go through the content literacy stage related to the numbers in the mathematical problem given in the question.

Based on the results of the interview, the subjects explained that the answers given were based on estimates or were conjectural in nature so that they could not explain the calculation process in order to find the right solution. Subjects tend not to understand the meaning or content of a given mathematical problem. As a result, the subject cannot determine steps or systematic processes in solving mathematical problems. Judging from the context, the mathematical problems given relate to the daily life activities experienced by the subject, so that the subject has been able to go through the context literacy component in a personal form.

Furthermore, mathematical literacy skills include components of the literacy process, namely formulation, content literacy components, namely Change and Relationships, and context literacy components, namely work. The mathematical problems presented in this section relate to social arithmetic concepts. In order for the subject to solve this mathematical problem, the subject must understand the concept of social arithmetic which is based on the content of change and relationship. The context of the problem presented in this question relates to the subject's occupational activities. The dominant process component in this problem is formulated so that the subject can model the problems faced in a mathematical form.

When solving the problem, the subject is able to write down the relationship in the form of a mathematical model, but the subject only looks at the mathematical model that is in the problem and is unable to explain the relationship in the model appropriately. In this section, the subject has not been able to complete the stages in process literacy related to making mathematical models based on problems viewed from various contexts. The subject also has not been able to explain the relationship between the algebraic form written in problem-solving, so that he has not been able to go through the content literacy stage related to change and relationship.

Based on the results of the interview, it was obtained an explanation that the subjects did not really understand the problem given. Subjects can write relationships in the form of a mathematical model but only look at the existing mathematical models in the problem without being able to explain the relationship appropriately. The subject cannot explain the relationship from the algebraic form that is made because he only sees the existing model in the problem. Therefore, the conclusions obtained were not correct, because they did not understand the mathematical model that was written. However, the subjects understood that the problems given were related to work that is usually experienced in everyday life. Mathematical literacy skills include process literacy components about Employ, content literacy components about Uncertainty and Data, and context literacy components about Societal. The problems given in this section relate to statistical concepts. In order for the Subject to solve this problem, the subject must understand the concept of statistics and how to present measurement results based on uncertainty and data content. The context of the problem presented in this question is in the form of measurement results related to social activities. The dominant mathematical process in this problem is the employer so that the subject can use procedural knowledge to solve the given problem, then can compare it with other measurement results.

When solving problems, the subject has not been able to use mathematical concepts correctly, which is wrong in determining the formulas used, so that they cannot solve the mathematical problems given correctly. In addition, the subject is not able to solve the problem completely. In this case, it can be said that the subject has not been able to go through process literacy to solve problems in various contexts. Furthermore, subjects are also unable to present and interpret data so that they are not able to

go through the content literacy stage related to uncertainty and data. Mathematical problems in this problem are related to everyday social life for the subject so that they are easy to understand and can be solved properly. Subjects are able to go through the context literacy stage because they understand that the problems given are closely related to the activities of daily life.

Mathematical Literacy Ability Viewed From Low Self-Efficacy

Mathematical literacy skills include process literacy components about Interpretation, content literacy components about Quantity, and context literacy components about Personal. The mathematical problems presented in this section relate to social arithmetic concepts. In order for the subject to solve this problem, the subject must be able to understand the concept of social arithmetic based on quantity content. The context of the problem presented in the questions relates to the personal activities of the subject which are personal. The dominant mathematical process in this problem is the interpreter so that the subject is required to understand the problem, make solutions, and then make conclusions.

At the time of solving the problem, the subject has been able to interpret the meaning of a mathematical solution, but the process or steps in solving the problem are not precise and inaccurate. Based on the answers given, it shows that the subject has not been able to go through the stages of interpreting the meaning of mathematical solutions into the context of problems related to process components. In addition, the subject is also not able to explain the steps to solve the problem, the answers given by the subject are only based on estimates or conjectures without a basic understanding. In this case, it shows that the subject has not been able to go through the content literacy stage properly with regard to numbers. Judging from the form of the problem given, it is directly related to the subject's daily personal activities, so it can be said that the subject is able to go through the context literacy stage related to personal (personal).

Furthermore, mathematical literacy skills include a process literacy component that is formulation, the content literacy component is Change and Relationships, and the context literacy component is work. The mathematical problems presented in this section relate to social arithmetic concepts. In order for the subject to solve this mathematical problem, the subject must understand the concept of social arithmetic which is based on the content of change and relationship. The context of the problem presented in this question relates to the subject's occupational activities. The dominant process component in this problem is formulated so that the subject can model the problems faced in a mathematical form

When solving the problem, the subject cannot write the relationship between the concepts in the form of a mathematical model correctly. Subjects still experience errors in the problem-solving stage. Based on the form of the answer given, it can be said that the subject does not yet have literacy skills in the process components related to the formulation in making mathematical models, which are based on problems related to various contexts. Furthermore, the subject is also not able to explain the relationship of the written algebraic form so that it has not been able to go through the stages of content literacy components related to change and relationship, everyday life. This gives an indication that the subject has been able to go through the context literacy stage related to the subject's work (occupational).

Mathematical literacy skills include process literacy components about Employ, content literacy components about Uncertainty and Data, and context literacy components about Societal. The problems given in this section relate to statistical concepts. In order for the Subject to solve this problem, the subject must understand the concept of statistics and how to present measurement results based on uncertainty and data content. The context of the problem presented in this question is in the form of measurement results related to social activities. The dominant mathematical process in this problem is the employer so that the subject can use procedural knowledge to solve the given problem, then can compare it with other measurement results.

At the time of solving the problem, the subject has not been able to use mathematical concepts appropriately in accordance with the given problem. The subject is still experiencing errors in the process and the steps used, the solution is not complete. Judging from the process of solving it, the

subject has not been able to go through the stage of using mathematical concepts in solving problems, so they do not have process literacy skills related to employment. Furthermore, the subject was also not able to present and interpret the data in the questions. In this case, the subject has not been able to go through the content literacy stage related to uncertainty and data (uncertainty and data). According to the subject's opinion, a given mathematical problem is related to daily social life which is often experienced by the subject. This gives an indication that the subject has been able to go through the context literacy stage related to social activities.

DISCUSSION and CONCLUSION

Mathematical Literacy Ability Viewed From High Self Efficacy

Based on the results of the mathematical literacy test and the results of interviews, it shows that subjects with high self-efficacy, in the process of solving mathematical problems related to the interpretation, quantity, personal in general have not been able to go through the stage of interpreting the meaning of mathematical solutions into the context of the problem. The subject has made an effort to find a mathematical solution that is shown through the answer given and has led to the actual answer. However, the answers given are predictive without going through a mathematical process. The subject is also not able to go through the content literacy stage related to quantity, unable to explain the steps in solving the problem, even though basically the problems given are directly related to the activities of daily life.

In the process of solving mathematical problems related to formulating, change, and relationship, and occupational, in general subjects with high self-efficacy have not been able to go through the stage of making mathematical models based on problems in various contexts. However, the subject has been able to understand the problem and provide an explanation that is relevant to the context of the problem at hand. The subject also has not been able to go through the content literacy stage related to change and relationship, cannot explain the relationship of the algebraic form of the written mathematical model, even though the problems given are related to the activities of daily life.

In the process of solving problems related to employer, uncertainty and societal data, in general subjects with high self-efficacy have not been able to go through the stage of using mathematical concepts to solve problems in various contexts. The subject has not been able to fully understand the context of the problem given. The subject is also not able to go through the content literacy stage related to uncertainty and data because the subject cannot interpret and present data according to the problems given, even though the problem is related to the social life experienced by the subject. In general, seen from the test results and interview results, the subject has tried to solve the problem given based on his abilities. In the process literacy component, the subject has not fully been able to go through the interpret and formulate stages because the answers given cannot be explained based on a precise mathematical process. Subjects also have not been able to go through the employment stage because they do not understand the concepts used to solve problems.

In the content literacy component, the subject has not been able to go through the stages related to quantity, change and relationship and uncertainty, and data because it cannot provide a precise description of the three stages. In the context literacy component, the subject is able to go through the personal, occupational, and societal stages because of the problems given related to everyday life. This result is relevant to the findings put forward by Hiller *et al.* (2021) stated that students' socioeconomic status is the strongest predictor related to mathematical literacy

Mathematical Literacy Ability Viewed From Low Self Efficacy

Based on the results of the mathematical literacy test and the results of interviews, it shows that subjects with low self-efficacy, in the process of solving problems related to the interpretation, quantity, personal, generally have not been able to go through the stage of interpreting the meaning of mathematical solutions into the context of the problem. The solution given is not relevant to the context of the problem given. The subject has not been able to explain the steps in problem-solving

even though the problems given are directly related to personal activities. In this case, the subject has not been able to go through the content literacy stage related to quantity.

In the process of solving problems related to formulating, change, and relationship, occupational, in general, the subject has not been able to go through the stages of making mathematical models of problems in various contexts because they do not understand the problem. Subjects have not been able to go through the content literacy stage of change and relationship because they cannot explain the relationship between the algebraic form of the mathematical model. although the problems given are related to the work experienced by the subject in everyday life.

In the process of solving problems related to the employer, uncertainty, and societal data, in general, the subject has not been able to go through the stage of using mathematical concepts to solve problems in various contexts because the subject does not understand the concepts that will be used to solve problems. Subjects have not been able to go through the uncertainty and data content literacy stage because they cannot interpret and present data according to the problems given. This result is supported by the research of Ghofur et al. (2021) which states that students who have low self-efficacy have not mastered the components of the mathematical literacy process optimally.

In general, based on the results of tests and interviews, the subject was unable to understand and solve the problems given in accordance with mathematical procedures. In the process literacy component, the subject has not been able to go through the interpret, formulate and employ stages because they do not understand well the problems given according to the desired objectives in the questions. In the content literacy component, the subject has not been able to go through the quantity, change and relationship and uncertainty and data stages because it cannot provide a context literacy component, the subject is able to go through the personal, occupational, and societal stages because the problems given are related to daily life activities experienced by the subject. This is in line with the research results of Indrawati & Wardono (2019) that self-efficacy is a function of many variables that can increase sensitivity to the usefulness of mathematics in solving everyday problems. This sensitivity will help him to solve problems effectively and efficiently.

Based on the results of the research and discussion that has been stated, it is found that subjects with high self-efficacy have better literacy skills than subjects with low self-efficacy, even though their abilities are still at a low level. This is in line with the research results of Muhazir et al. (2020) who found that differences in student self-efficacy led to differences in their literacy abilities. One of the causes of the low ability of the subject's mathematical literacy is the low understanding of the given problem, the lack of initial knowledge of mathematical concepts related to the given problem, the inability to provide systematic interpretation and reasons for how to solve the problem. In another part, Arslan & Yavuz (2012) explain in their research results that the relationship between self-efficacy and mathematical literacy can below and can be high, is relative. Kurniawati & Mahmudi (2019) found that the relationship between mathematical literacy skills and student self-efficacy is in the medium criteria because the correlation value is .428.

The results of this study indicate the need for further exploration to improve self-efficacy and mathematical literacy in the learning process in schools. As stated by Letwinsk (2017) in the results of his research, it is necessary to involve educators and student motivation to facilitate a better understanding of mathematical concepts. Educators must be aware of the greater potential and broader understanding of teacher perceptions and the factors associated with them.

Conclusion

Subjects who have high self-efficacy have mathematical literacy skills in the process literacy component but are still relatively low because they have not been able to go through the interpret, formulate, employ perfectly. Has very minimal skills in the content literacy component because they cannot go through the stages of quantity, change and relationship and uncertainty, and data. Have a good ability in the context literacy component through the personal, occupational, and societal stages, because the problems given are related to real-life daily activities experienced by the subject.

Subjects who have low self-efficacy, do not have mathematical literacy skills in the process literacy component or the content literacy component. However, it has a good ability in the context literacy component through the personal, occupational, and societal stages, because the problems given are related to real-life daily activities experienced by the subject.

The superiority of subjects with high self-efficacy compared to low self-efficacy lies in the ability of mathematical literacy to be the component of process literacy. Subjects with high self-efficacy are able to interpret, formulate, employ even though they are not yet perfect; while subjects with low self-efficacy were not able to do it at all.

Suggestion

It is suggested to the teacher that students should familiarize students with problems related to mathematical literacy which contain components of process literacy, content literacy, and context literacy so that students have experience with questions like this. In addition, teachers are encouraged to always provide motivation, appreciation, and positive habituation to students in every learning process so that students have better self-efficacy.

REFFERENCES

Arslan, C., & Yavuz, G. (2012). A study on mathematical literacy self-efficacy beliefs of prospective teachers. *Procedia-Social and Behavioral Sciences*, *46*, 5622-5625

Azar, F. S. (2013). *Self-efficacy, achievement motivation and academic procrastination as predictors of academic achievement in pre-college students.* Proceeding of the Global Summit on Education, 173-178.

Bandura, Albert. 1997. *Self-efficacy the excercise of control*. USA: W. H Freeman and Company.

Carmichael, C., Callingham, R., Hay, I., & Watson, J. (2010). Statistical literacy in the middle school: The relationship between interest, self-efficacy and prior mathematics achievement. *Australian Journal of Educational & Developmental Psychology*, *10*, 83-93.

De Lange, J. (2006). Mathematical literacy for living from OECD-PISA perspective. *Tsukuba Journal of Educational Study in Mathematics*. https://doi.org/10.1.1.500.5073

Farida, Y., Cahyono, E., & Kadir (2018). *Analisis Kemampuan Literasi Matematika Siswa SMP Kelas VIII Di Kabupaten Konawe Kepulauan Ditinjau dari Perbedaan Gender*. Tesis PPs UHO Kendari: Tidak dipublikasikan.

Ghofur, A., Masrukan, M., & Rochmad, R. (2021). Mathematical literacy ability in experiential learning with performance assessment based on self-efficacy. *Unnes Journal of Mathematics Education Research*, *10*(A)

Hidayat, D.R. 2011. *Teori dan Aplikasi Psikologi Kepribadian dalam Konseling*. Bogor: Ghalia Indonesia.

Hiller, S. E., Kitsantas, A., Cheema, J. E., & Poulou, M. (2021). Mathematics anxiety and self-efficacy as predictors of mathematics literacy. *International Journal of Mathematical Education in Science and Technology*, 1-19. https://doi.org/10.1080/0020739X.2020.1868589

Indrawati, F. A., & Wardono, W. (2019). Pengaruh Self Efficacy Terhadap Kemampuan Literasi Matematika dan Pembentukan Kemampuan 4C. In *PRISMA, Prosiding Seminar Nasional Matematika* (Vol. 2, pp. 247-267).

Kurniawati, N. D. L., & Mahmudi, A. (2019, October). Analysis of mathematical literacy skills and mathematics self-efficacy of junior high school students. In *Journal of Physics: Conference Series* (Vol. 1320, No. 1, p. 012053). IOP Publishing.

Kusaeri. 2011. *Transformasi Nilai-Nilai Karakter Melalui Pelajaran Matematika di Sekolah.* Aksioma: Jurnal Matematika dan Pendidikan Matematika, 2(1), 21-32.

Letwinsky, K. M. (2017). Examining the Relationship between Secondary Mathematics Teachers' Self-Efficacy, Attitudes, and Use of Technology to Support Communication and Mathematics Literacy. *International Journal of Research in Education and Science*, *3*(1), 56-66.

Mahdiansyah, M., & Rahmawati, R. (2014). *Literasi matematika siswa pendidikan menengah: Analisis menggunakan desain tes internasionaldengan konteks Indonesia*. Jurnal Pendidikan Dan Kebudayaan, 20(4), 452–469.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2018). *Qualitative data analysis: A methods sourcebook*. Sage publications.

Muhazir, A., Hidayati, K., & Retnawati, H. (2020). Literasi Matematika dan Self-efficacy Siswa SMA Kelas XI di Kota Banjarmasin dan Kota Palangka Raya berdasarkan Perspektif Perbedaan Kebijakan Sistem Zonasi. *Pythagoras: Jurnal Pendidikan Matematika*, *15*(2).

OECD. PISA *2012 Assesment and Analytical Framework: Mathematics, Raeding, Science, Problem Solving and Financial Literacy*, Paris: OECD Publisher, 2013.

_____. PISA *2015 Assesment and Analytical Framework: Mathematics, Raeding, Science, Problem Solving and Financial Literacy*, Paris: OECD Publisher, 2016.

_____. PISA *2018 Assesment and Analytical Framework: Mathematics, Raeding, Science, Problem Solving and Financial Literacy*, Paris: OECD Publisher, 2019.

Ojose, B. 2011. *Mathematics Literacy: Are We Able To Put The Mathematics We Learn Into Everyday Use?*. Journal of Mathematics Education, 4(1). hlm. 89-100.

Pajares, F., & Miller, M. D. 1994. *Role of self-efficacy and self-concept beliefs inmathematical problem solving:* A path analysis. *Journal of educational psychology*, 86(2), 193.

Pudjiastuti, E. (2012). Hubungan "self-efficacy" dengan perilaku mencontek mahasiswa psikologi. *MIMBAR: Jurnal Sosial dan Pembangunan*, *28*(1), 103-111

Rakib, A., Kadir, & La Ili. (2018). *Analisis Kemampuan Literasi Matematis Siswa SMP Di Kabupaten Konawe Kepulauan*. Tesis PPs UHO Kendari: Tidak dipublikasikan.

Robbins, S. (2003). *Perilaku Organisasi Jilid 1*. Jakarta: Indeks Kelompok Gramedia

Schunk, D. H. (1991). *Self-efficacy and academic motivation*. Educational Psychologist. 26, hlm. 207-231.

Stacey, K., & Turner, R. (2015). *Assessing mathematical literacy: The PISA experience*. Cham: Springer. https://doi.org/10.1007/978-3-319-10121-7

.