Analysis of Elementary School Students' Numeracy Literacy Ability in Solving Minimum Competency Assessment (AKM) Questions: Case Study of Challenges and Opportunities

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Article Info	Abstract
	This study is motivated by a phenomenon implementation assessment minimum competency (AKM) in class V at SD Negeri 01 in the Regency Karanganyar. The researcher discusses in a way deep literacy numeracy ability and the challenges faced by student class 5 in the question assessment Minimum Competency (AKM) in Mathematics at State Elementary School 01 in the Regency Karanganyar as well as How opportunities obtained from results test assessment minimum competency (AKM) at SD Negeri 01 in the Regency Karanganyar. Research objectives This is to 1) describe literacy numeracy and the challenges faced in doing question assessment minimum competency (AKM) mathematics student Class V at State Elementary School 01 in the Regency Karanganyar, 2) describe opportunities obtained from results test assessment minimum competency (AKM) mathematics student Class V at State Elementary School 01 in the Regency Karanganyar. Research methods This use study qualitative with use approach studies case study. Results study This shows: 1) literacy numeracy ability Still low. This is proven with an average score results test Assessment Minimum Competence (AKM) namely as much as 28.24 of number of 17 students, challenges faced that is student first time using a laptop in test, students Still yet understand question in AKM test, students Still difficulty do in determine the formula used For finish questions, and the material that the teacher has taught is still Not yet Can understood with good, 2) opportunity from existence test Assessment Basic Competencies (AKM) can as teacher evaluation in do repair learning For student For increase literacy numeracy ability. Implies existence improvement of learning process, improvement evaluation and measurement as well as individual intervention and support for student.

INTRODUCTION

Learning in the 21st century is significant in developing numeracy as an integral part of comprehensive literacy. One of the critical literacy skills to develop is numeracy literacy [1]. Literacy numeracy is related to the ability to think and reason. Literacy numeracy is the ability to think and reason in learning mathematics, which is more critical in the era of technology and information moment, where is this student not only understands concepts of mathematics in a theoretical way but also expected to apply it with the ability to think and reason in life daily [2].

Literacy is related closely to language, while ability numeracy is related closely to mathematics, so literacy numeracy is the ability to reason using language and mathematics [3].

Learning in the 21st century prepares students to overcome mathematics, emphasizing mastery of literacy, numeracy in-depth, and the ability to think critically and solve problems [4]. So, literacy numeracy in the 21st century cannot be ignored nor become a runway in education [5]. Literacy numeracy ability in learning in the 21st century provides students with relevant and necessary skills to succeed and adapt to the environment that continues to change in this modern era—literacy numeracy ability in school is essential in learning in the 21st century [6]. Students need to control their literacy and numeracy abilities in order to be able to build a strong foundation in mathematics.

Numeracy literacy also includes reading and understanding data using numbers and symbols related to mathematics, the basis presented in the form of graphs, charts, tables, and others [7]. By understanding this, students can develop literacy numeracy ability that supports comprehensively understanding mathematics and helps them face challenges of more complex mathematics at the higher education level. In line with That, increasing literacy and numeracy ability is the right way to fulfill component challenges in the independence era. Study moment This will prepare students to compete with other countries [8].

Students must face challenges involving other parties, such as teachers and classmates, to increase individual students' literacy and numeracy ability in line with social constructivism theory according to Vygotsky in the concept of *Zone of Proximal Development* (ZPD) and *Scaffolding. Zone of Proximal Development* (ZPD) emphasizes the ability to solve problems guided by adults or more capable peers while the concept of *Scaffolding* where students are given assistance to be able to learn and solve problems, assistance in the form of encouragement, warnings, instructions, and other actions so that students can learn independently [9]The context of numeracy literacy, in the concept of ZPD this means that, students in developing numeracy literacy skills by interacting directly with other, more capable people can be with teachers, friends, family members and people who are more experienced to collaborate in solving mathematical problems in everyday life.

The concept of *scaffolding* in the context of numeracy literacy where tutors or teachers can use the proper techniques to help students understand more complex mathematical concepts, either by providing support to students to solve mathematical problems. So, by applying the principles of social constructivism in mathematics education, educators can create a more interactive and meaningful learning environment that supports student understanding and academic achievement [10]. According to Vygotsky, from the description of the social constructivism theory, in improving numeracy literacy skills, guidance from more capable people and assistance in the form of encouragement or instructions are needed to solve mathematical problems.

Apart from Vygotsky's theory, another theory supports literacy numeracy students. That theory study is cognitively related to a learning process that tends to have no looks like power remembers, in-depth understanding of ideas, and more detailed information processing. Emphasize the learning process rather than the study results [11]. In this context, This student is capable of understanding cognitive as well as processing information numeracy. So, the importance of theory in literacy numeracy students to understand method students with memory,

attention, and reasoning Because, in finish question mathematics, matter memory is needed For can choose the right and capable formula reason to understand related issues with mathematics as well as use information in learning mathematics or finish problem mathematics.

Frequent problems related to literacy numeracy in school involve several challenges that can influence understanding and mastery of mathematics students. Interview results show that students have negative perceptions of mathematics, so in learning, they are not excited and consider it challenging to understand and question mathematics. In line with That, according to [12]. Mathematics is often considered difficult lesson by participants because of a lack of understanding of concepts and utilization from learning the difficulty in interpreting context situations real into a mathematical model, formulating the problem, and understanding structure-related mathematics with patterns in the problem. The fact is that students Still do not understand mathematics concepts or are wrong in understanding mathematics concepts; besides, teachers still use methods of inadequate teaching to students. Lack of parental involvement in supporting literacy numeracy in the environment at home can also become an obstacle for students.

Observation results The field that has been done moment follows the campus program teaching at State Elementary School 01 in the Regency Karanganyar that is Still low literacy numeracy ability students, as seen from the results settlement test assessment minimum competency (AKM) *posttest* and *pretest*. Students experience difficulty finishing test assessment minimum competency (AKM) because of a lack of understanding of question test assessment minimum competency (AKM). In addition, a new minimum competency (AKM) test assessment was first implemented at State Elementary School 01 in the Regency Karanganyar. Therefore, increasing literacy numeracy in primary school requires effort integrating development methods, innovative teaching, and cooperation between school and parents to create environment supportive learning specifically in literacy numeracy that becomes the foundation for student school. So, the problem that will be solved in the study is How literacy numeracy ability and the challenges faced by student class 5 in do question assessment Minimum Competency (AKM) in Mathematics at State Elementary School 01 in the Regency Karanganyar as well as How opportunities obtained from results test assessment minimum competency (AKM) at SD Negeri 01 in the Regency Karanganyar.

Several research studies have been done in several research, such as by Ate et al. (2022); Triwahyuningtyas et al., (2023); Simarmata et al., (2020); Khoirudin et al., (2022) research ability students in finish question literacy numeracy, questions story, question operation count fractions, division and multiplication of numbers round. Besides that, according to [17], literacy numeracy can be seen through the ability to finish the questions in the Program *for International Student Assessment* (PISA). Research about Assessment Minimum Competencies (AKM) in Middle School and High School has been carried out by [18]; [19]. In line with the information, the research examines the existence of literacy numeracy ability, the challenges faced in finishing test assessment minimum competency (AKM), and the opportunity from results of test assessment minimum competency (AKM) not yet done. Test Assessment Minimum Competencies (AKM) are designed to measure competence, thinking, or reason. Students read the information at the time and read reading that has problems and needs knowledge in settlement. That becomes important in supporting what students have achieved to raise quality Study teaching. AKM

activities as functional training : To introduce participants (students) to the minimum test assessment competence that the Ministry of Education and Culture inaugurated. Components grain question assessment competence minimum needed No For equipment measuring but for topic and content specific Where part cognitive process levels. The assessments are carried out only by students who answer or respond to each question provided [20].

A study needs to be done to develop an evaluation in finish question assessment minimum competency (AKM) to know the challenges and opportunities literacy numeracy ability students at the level school primary in class V. Literacy numeracy ability students are critically owned by students school base Because as foundation base for students. Finish question assessment minimum competency (AKM) as a tool assessment national testing ability literacy reading and literacy numeracy student [21]. This can increase students' ability to think critically and solve their life problems [22]. Therefore , the study goal includes describing literacy numeracy ability in the final assessment of minimum competency (AKM) for grade 5 of elementary school and knowing the challenges and opportunities obtained in the final assessment of minimum competency (AKM) for grade 5.

METHODS

This study involved 17 participants educated Class V of Elementary School 01 in Regency Karanganyar, consisting of 11 boys and six female students women who have done test Assessment Minimum Competencies (AKM) consisting of 20 questions that the Ministry of Education and Culture has validated. The type of research used is qualitative, using approach studies. A case study is an effort systematic and detailed in analyzing a program, event, or activity with careful aiming to get a deep understanding of the matter said good That occurs in individuals, groups, institutions, or organizations [23] studies case directed For collect data, take meaning, to obtain understanding from A case.

The research will explore literacy students' ability to finish test Assessment Minimum Competency (AKM) and challenges and opportunities. The test Assessment Minimum Competence (AKM) aims to measure students' literacy and numeracy ability. Data collection techniques in research include interviews and documentation. Procedures study This is where the researchers use interviews to determine how challenging student moments are for teacher tests and opportunities based on the test Assessment Minimum Competency (AKM) results. The types of interviews used are interviews that are not structured, where researchers do not use guidelines, structured interviews , or systematic interviews so that they can develop questions in depth after listening to answers from respondents [24]. Data was collected through interviews with students and teachers on March 7, 2024.

Meanwhile, data collection is done in the form of documentation through data collection in the form of Photo-related activity implementation tests, such as Assessment Minimum Competency (AKM), Questions and Result Data activity Assessment Minimum Competency (AKM). Documentation in the form of Photo Activity Assessment Minimum Competency (AKM) is taken at the time of implementation (AKM) on November 14, 2023. Meanwhile, the results data test Assessment Minimum Competency (AKM) was taken on February 5, 2024. The indicators are literacy, numeracy, and ability of the student. There are 3, namely skills that use various types of related numbers and symbols mathematics base for solving problems in various

types of contexts life every day, the ability to interpret results analysis to predict and take decisions, and the ability to analyze information displayed in various forms graphs, tables, charts, diagrams.
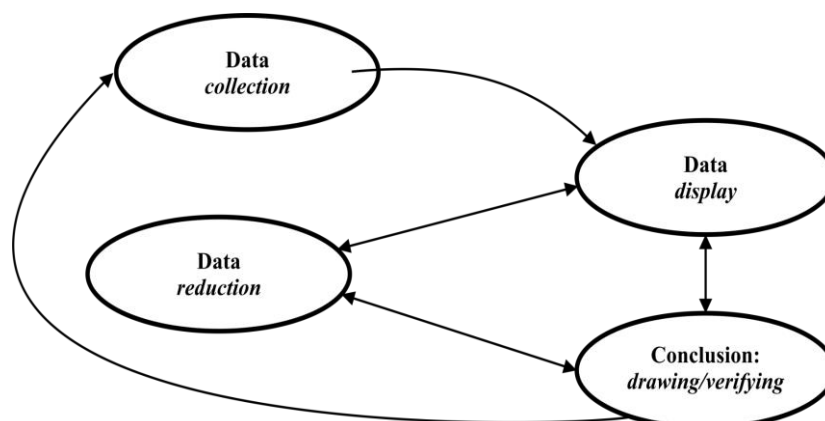

Figure 1. Components in data analysis (interactive model)
Source: Miles & Huberman (1984) in the book Sugiyono

Data analysis to be used in the study This is a data analysis model popularized by Miles and Huberman (1984). This model consists of three stages: data reduction, display, and extraction. Conclusion. Stage data collection is done through interviews and documentation. Stage data presentation is essential, namely selecting, classifying, and organizing data with such that appearance and eliminating lack of information. In the stage withdrawal conclusion, the test assessment results of minimum competency (AKM) are analyzed. Then, based on the test results, the student is categorized into three levels: literacy numeracy ability low, medium, and high.

Table 1. Value Intervals for Each Category [25]

Value Interval	Category
≤40	Low
41-70	Medium
≥71	High

Source: Sari et.al (2021)

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RESULTS AND DISCUSSION

In the research, the data obtained is an analysis of literacy numeracy ability in finishing the test assessment for minimum competency (AKM). Answer test students in finish test Assessment Minimum Competencies (AKM) are then analyzed literacy numeracy ability.

1. **Analysis of Numeracy Literacy Ability**

   Assessment Test Results Minimum Competency (AKM)

Table 2. AKM Test Results

No	Student Name	Student Score
1.	MRS	25
2.	NEA	20
3.	RN	30
4.	SAA	30
5.	AKAW	35
6.	RAD	20
7.	SMAK	25
8.	RACE	30
9.	SPM	30
10.	RAP	35
11.	BAA	25
12.	DNA	30
13.	SPR	35
14.	LZK	30
15.	AAP	30
16.	FSDN	30
17.	PRJM	20

Based on the results of the AKM test that grade V students took, the highest score of students with a score of 35 was 3 (three). The lowest score of students, with a score of 20, was 3 (three). So, the average AKM score of students at SD Negeri 01 in Karanganyar Regency, with 17 students, is 28.24. The average AKM score of students shows a low category. This is in line with the research of Ratna Sari et al. (2021) entitled The Numeracy Ability of High School Students in Solving Minimum

Competency Assessment (AKM) questions, [25] which states that 40 is included in the low category. This statement is reinforced by research by Aristawati (2022), which states that based on the numeracy literacy assessment score interval table, the value interval of ≤ 40 is included in the low category [26].

Figure 2. AKM Questions

Figure 3. AKM Student Work

In Figure 2, which shows the AKM question by choosing true or false, students work by looking at the data presented, while in Figure 3, which is the result of students' work in solving questions related to reading from table data. The question above is included in the difficult category because students must be able to read the data that has been presented and analyze how to solve the question. This is in line with the results of interviews with SPR students revealing that,

> "The AKM questions with table images are quite difficult, but if you try to understand the questions continuously, they are easy to understand, where the way to work on 50 kg of water is 2,100 ml by dividing 2100 by the appropriate type of bottle."

Based on the interview data and the work on the questions above, it can be concluded that students are still less able to understand questions related to reading data in the form of tables, but students try to understand the questions and students can solve questions related to data presentation."

Matematika - Postes Numerasi Level 2 Kelas 5 KM6
22NUM22GEOPKRG10K4-220606-2056
Lihat Pedoman

Klik Benar atau Salah pada setiap pernyataan berikut!

Di wahana Dunia Anak, Susan bertemu dengan dua orang teman sekolahnya.
Ahmad memiliki berat badan 32 kg dan tinggi 139 cm. Nita memiliki berat badan 29 kg dan 133 cm.

Mereka bertiga berencana akan menaiki wahana histeria.

Manakah dari pernyataan berikut yang menyatakan bahwa Susan, Ahmad, dan Nita memenuhi syarat untuk menaiki wahana histeria! Klik **Benar** atau **Salah** pada pernyataan berikut ini!

Pernyataan	Jawaban	
Tinggi badan Susan, Ahmad, dan Nita sudah memenuhi syarat untuk menaiki wahana histeria.	○ Benar	○ Salah
Berat badan Ahmad dan Nita tidak memenuhi syarat untuk menaiki wahana histeria karena kelebihan berat badan.	○ Benar	○ Salah

Berlibur ke Dunia Anak
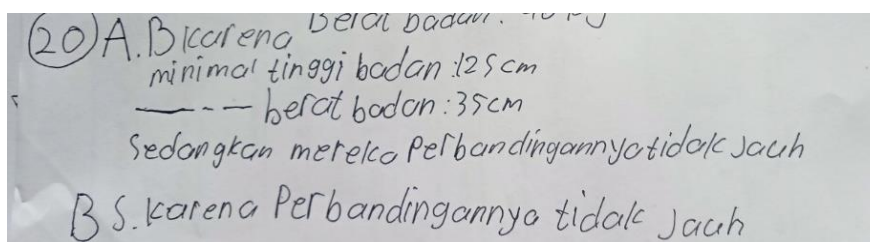
Figure 3. AKM questions

Figure 4. Working on the Questions

In Figure 3, which shows the AKM question by choosing true or false, students work by looking at the measurement data presented in the form of images. Students can determine the comparison in Figure 4, which is the result of students' work in solving questions related to reading from weight and height measurement data. The question above is included in the difficult category because students must be able to read the measurement data that has been presented and analyze how to solve the question. This is in line with the results of the interview with student L, who revealed that,

> "AKM questions that have pictures to find comparisons are difficult to understand because they do not understand how to solve them, and even though the teacher has explained the comparison material, they are still confused about solving it because they still do not understand the material presented by the teacher."

Based on the interview data and the work on the questions above, it can be concluded that students are still less able to understand questions related to reading measurement data in the form of images, students are still confused in determining the right formula, and students still have difficulty reading very long measurement data. This is in line with research by Toha et al. (2018), who said that students are still in a hurry to read questions, so they are less careful in working on them, less skilled in calculating and forgetful, students cannot arrange the meaning of the words they think into mathematical sentences, and lack practice in working on various story questions with different variations [27]. This statement is reinforced by Rahmawati A (2022), who stated that students have difficulty understanding context-related statements with material measurement. Although questions are daily associated with life, many of them feel foreign or Not

yet. As found previously, students have difficulty finishing questions with good so they are Still Not yet capable of interpreting problems in question mathematics [28]

2. Challenge Solving AKM Questions

Based on the results of in-depth interviews to explore the challenges students face when working on the AKM test. Researchers interviewed several students using the interview guidelines that had been prepared. The existence of interview activities strengthened the challenges in working on the AKM. The results of interviews by SPR students said that,

> "When working on the AKM test, there are challenges faced, namely the difficulty of understanding the AKM questions, still not understanding the material taught by the teacher."

In addition, according to the results of interviews with students, LZK added the challenges of completing AKM questions as follows,

> "The challenges faced when working on AKM questions are that the questions in the AKM test have never been studied, the material is not in the study books used daily, and there are still doubts and confusion because it is the first time working on a test using a laptop."

From the interview description above, it can be concluded that the challenges faced by students when working on the AKM test our students are doing the AKM test for the first time using electronic devices. Hence, students still struggle to operate laptops when working on the AKM test. In addition, students still have difficulty understanding each question in the test, and students assume that they have never studied these questions. The material the teacher has given can still not be understood, and there are still students who forget the material the teacher gave. Previous research that is in line with that was conducted by Syarifah et al. (2023) said that AKM questions are more complicated than PTS/PAS questions, students have never studied AKM questions, all AKM questions are in the form of story questions, and everyday problems so that students in working on them must read the discourse and questions on the other hand simultaneously able to think and understand the meaning of the discourse and questions, in this study the results of students' AKM are still in the low category [29]. This statement was reinforced by Diyarko et al. (2016), who said that teachers do not get used to students. For training with questions, literacy, mathematics, and the methods and media used are insufficient to support learning [30]. In line with the matter, [31] says that the level of mathematical anxiety experienced by students can affect students' numeracy literacy skills both directly and indirectly. The lack of understanding of basic mathematical concepts, which results in students' ability to solve problems, is still low. Students' excessive mathematical anxiety influences this, so students cannot concentrate, feel panicked, and cannot do it before trying first.

3. Opportunities obtained with AKM

Seeing the various challenges students face in completing AKM, teachers obtain opportunities through the results of the AKM test. The following is the data on the results of the AKM pretest and posttest of grade 5 students of SD Negeri 01 in Karanganyar Regency.

Table 3. Results of posttest and pretest of AKM for grade V students

No	Student Name	Pretest	Posttest
1.	MRS	20	25
2.	NEA	25	20
3.	RN	15	30
4.	SAA	25	30
5.	AKAW	20	35
6.	RAD	20	20
7.	SMAK	15	25
8.	RACE	5	30
9.	SPM	5	30
10.	RAP	15	35
11.	BAA	15	25
12.	DNA	10	30
13.	SPR	30	35
14.	LZK	15	30

This is supported by the interview activities carried out by the researcher with teacher W, who stated that,

"With the AKM test carried out by students, teachers make improvements to improve students' numeracy literacy skills by providing practice questions related to students' numeracy literacy skills and repeating the material that has been taught. Apart from that, with the AKM test for students, the results of the AKM test can measure student learning outcomes related to numeracy literacy so that teachers can help and overcome the AKM test results by making these improvements, which means there is an improvement in the students' posttest and pretest results, which is shown in table 3. The AKM test that has been implemented can provide benefits for students, such as students being able to use laptops and being able to encourage students' learning activities to be better. When students take the AKM test, the role of the homeroom teacher is certainly significant in supporting students. The support given is in the form of advice that provides motivation and encouragement to students to be able to study seriously. They must be confident and honest in doing the work so that the AKM results match the students' abilities. Teachers provide training to strengthen students' understanding abilities in working on various questions, both those already known and those not yet known, and studying questions not only in textbooks but also in other supporting books to broaden students' knowledge. So, implementing the AKM test can open up new opportunities, change learning, which was initially monotonous learning, to become more innovative and interactive learning carried out by teachers and students, and make progress for teachers and students by creating better learning, and students can be more enthusiastic. In learning so that it is proven that

students participate in the mathematics and science olympiad competition program which can support students' numeracy literacy skills at school."

From the interview above, it can be concluded that there are opportunities obtained by teachers after carrying out the AKM test at SD Negeri 01 in Karanganyar Regency, there are many opportunities obtained by teachers, namely being able to find out learning outcomes related to students' numeracy literacy, so that teachers make improvements in the learning process that can improve students' numeracy literacy skills as shown by students participating in mathematics and science olympiad competitions. Students' numeracy literacy skills are needed because with numeracy literacy skills, students' learning outcomes in mathematics can be improved [32]. This is in line with research by Rosmalah et al. (2023), which states that there is a relationship between students' numeracy literacy skills and mathematics learning outcomes. This is obtained from mid-semester assessment data for the 2021/2022 even semester at SDN 70 Lamurukung District Tellus Bone Regency, which shows that students' numeracy literacy skills are in the outstanding category with an average of 83.77 so that students' mathematics learning outcomes are very good with an average of 82.67 [33]. Science learning requires the ability to ask questions and think, numeracy literacy skills, and students' science skills. By using numeracy literacy skills in science learning, students can solve everyday problems and improve the quality of education and learning [34]. In line with research by Usgianti et.al (2022) states that the importance of strengthening students' numeracy literacy in science learning by using shell media which can improve student learning outcomes in science learning[35]

The challenges experienced by students in solving problems are: still have difficulty in understanding the problem in terms of reading comprehension skills, still have difficulty presenting problems in mathematical form or images of a problem, lack of student understanding of the material, difficulty in building a solution strategy and students still have difficulty in concluding [36]. In addition, the lack of numeracy literacy practice questions given by teachers so that students are accustomed to solving non-routine questions, teachers tend to make closed questions that can be solved using formulas [37].

By working on AKM questions, it can be seen that the numeracy literacy skills of grade V students at SD Negeri 01 in Karanganyar Regency are included in the low category. Based on the AKM results, it can discuss in depth the challenges faced by students when working on the AKM test where challenges can affect students' AKM results and by seeing the opportunities obtained from the AKM results so that it implies improvements in the learning process, increased evaluation and measurement as well as individual intervention and support for students.

CONCLUSION

Research conducted at SD Negeri 01 in Karanganyar Regency shows that numeracy literacy skills are still low. This is evidenced by the average Minimum Competency Assessment (AKM) test result score, which is 28.24 from 17 students. Challenges and opportunities for the AKM test include students using laptops for the first time in the test, students still not understanding the questions in the AKM test, students still having difficulty in determining the formula used to solve the questions, and the material that the teacher has taught is still not well understood. In

addition, the opportunity for the Basic Competency Assessment (AKM) test can be an evaluation for teachers in improving learning for students to improve numeracy literacy skills. The existence of a minimum competency assessment (AKM) carried out in grade V should be able to improve students' numeracy literacy skills as provisions for continuing to a higher level of education and provisions for everyday life. This AKM test is an alternative for teachers to measure students' numeracy literacy skills and references for further learning.

REFERENCES

[1]   N. Amarta, RII Putri, and Zulkardi, "Students' Numeracy Skills in Learning Cartesian Coordinate System Using PMRI in the Context of Palembang LRT," *Journal of Mathematics Education,* vol. 17, no. 3, pp. 325–342, 2023, doi: 10.22342/jpm.17.3.20239.325-342.

[2]   RF Kusumadewi, N. Ulia, and N. Ristanti, " The Effectiveness of the Discovery Learning Model on Ability Literacy Mathematics in Elementary School," Elementary *School: A Study of Educational Theory and Practice,* no. 1, pp. 11–16, 2019, doi: 10.17977/um009v28i12019p011.

[3]   Literacy Movement Team Numeracy, *Supporting Materials Literacy Numeracy.* Jakarta, 2017.

[4]   SJ Sinaga *et al.,* "Implementation of PBL Model on Strengthening Students' Numerical Literacy and Digital Literacy Skills," *Journal Obsession: Journal of Early Childhood Education,* vol. 7, no. 1, pp. 575–586, Jan. 2023, doi: 10.31004/obsesi.v7i1.3123.

[5]   S. J. Howard, S. Woodcock, J. Ehrich, and S. Bokosmaty, "What are standardized literacy and numeracy tests? Evidence of the domain-general contribution to students' standardized educational test performance," *British Journal of Educational Psychology,* vol. 87, no. 1, pp. 108–122, March. 2017, doi: 10.1111/bjep.12138.

[6]   Rosnelli and PA Ristiana, "Independent Curriculum Learning Management to Improve Students' Literacy and Numerical Competence in Schools," *International Journal of Education in Mathematics, Science and Technology,* vol. 11, no. 4, pp. 946–963, 2023, doi: 10.46328/ijemst.3513.

[7]   F. Irmawati and NK Ilmah, "Analysis Literacy numeracy ability in Students Class 5 SDN Saptorenggo 3 Malang Regency Keywords, " *JIIP (Journal of Educational Sciences),* vol. 5, no. 11, pp. 4917–4921, 2022, doi: 10.54371/jiip.v5i11.1083.

[8]   H. Naufal and SR Amalia, "Increasing Ability Literacy Mathematics Students in the Era of Independent Learning Through the Blended Learning Model," 2022.

[9]   PS Rahmat, *Learning Strategies Teaching.* Scopindo Media Library, 2019.

[10]   YIP Pranyata, "Constructivist Theory Study Social and Scaffolding in Learning Mathematics," *JIP),* vol. 1, no. 2, pp. 280–292, 2023.

[11]   MS Hapudin, *Learning and Teaching Theory: Creating Creative and Effective Learning,* Kencana. Jakarta: Kencana, 2021.

[12]   M. Syawahid, "Mathematical Literacy In Algebra Reasoning," *International Journal of Insights for Mathematics Teaching,* vol. 02, no. 1, pp. 33–46, 2019.

[13]   D. Ate, YK Lede, P. Study of Mathematics Education, S. College of Teacher Training and Education, Weetebula, J. Mananga Aba, and I. Dekriati, "Analysis Ability Student Class VIII in Solving Literacy Problems Numeracy," *Journal Cendekia: Journal of Mathematics Education,* vol. 06, no. 01, pp. 472–483, 2022, doi: 10.31004/ cendekia.v 6i1.1041.

[14]   D. Triwahyuningtyas, AAHM Hanum, IK Suastika, and NR Sesanti, "Analysis of the Student Numerical Literacy in Completing the Division Count and Multiplication Operation of the 6th Grade Elementary School Round Number," *JTAM (Journal of Theory*

and Applications Mathematics), vol. 7, no. 3, p. 592, Jul. 2023, doi: 10.31764/ jtam.v 7i3.13555.

[15] Y. Simarmata, N. Wedyawati, and ASR Hutagaol, "Analysis Literacy Mathematics in Solving Student Story Problems Grade V Elementary School," 2020. doi: 10.31932/j-pimat.v 2i1.654.

[16] M. Khoirudin, T. Anjarini, and Suyoto, "Analysis Ability Numeracy Students in Solving Mathematics Problems on Operations Material Count Fractions Class V of Kebondalem State Elementary School," *December,* vol. 3, no. 2, pp. 190–199, 2022, doi: 10.56667/ dejournal.v 3i2.772.

[17] FL Rahma and Reflina, "Analysis Literacy numeracy ability in Solving Program Problems For International Student Assessment (PISA)," *Journal Mathematics Education Works,* vol. 10, no. 1, pp. 11–20, 2023, doi: 10.26714/jkpm.10.1.2023.11-20.

[18] D. Wahyuni, "The Effect of Language Literacy and Numerical Literacy on the Result of the Minimum Competency Assessment (AKM) of SMAN Ploso Jombang," *Edunesia: Journal Science of Education,* vol. 4, no. 1, pp. 225–237, Jan. 2023, doi: 10.51276/ edu.v 4i1.315.

[19] AD Cahyanovianty and Wahidin, "Analysis Ability Numeracy Class VIII students in Completing Assessment Questions Minimum Competence," *Journal Cendekia: Journal of Mathematics Education,* vol. 05, no. 02, pp. 1439–1448, 2021, doi: 10.31004/ cendekia.v 5i2.651.

[20] B. Nanda Pratiwiningtyas, E. Susilaningsih, and I. Made Sudana, "Development Instrument Evaluation Cognitive For Measure Literacy Reading Indonesian Based on the Pirls Model for Students Grade IV Elementary School," *Journal of Educational Research and Evaluation History Article,* vol. 6, no. 1, 2017, doi: 10.15294/ jrer.v 6i1.16199.

[21] U. Hasanah, Edwita, and A. Januar, "Teacher Assistance in Developing Assessment Minimum Competence (AKM) Oriented towards PISA for Increase Quality of Learning Outcomes in Elementary Schools in Bogor Regency," *Journal Abadimas Adi Buana,* vol. 5, no. 01, 2021, doi: 10.36456/ abadmas.v 5.i01.a3634.

[22] CS Damastuti, AM Rinjani, and M. Vitaningsih, "Elementary School Teachers' Strategies in Face Assessment Minimum Competence," *JPPD: Journal Elementary Education Pedagogy,* vol. 9, no. 1, pp. 11–16, 2022, doi: 10.17509/ jppd.v 9i1.43168.

[23] HM Rahardjo and M. Si, "Case Studies in Research Qualitative: Concepts and Procedures," 2017.

[24] Sugiyono, *Research Methods Quantitative, Quantitative and R&D,* 2nd ed. Bandung: Alfabeta, 2019.

[25] D. Ratna Sari, E. Nur, Aeni Lukman, and M. Rijal Wahid Muharram, "Analysis Ability Student in Solving Geometry Problems in Assessment Minimum Competence - Numeracy Elementary School," 2021. doi: 10.36088/ fondatia.v 5i2.1387.

[26] Vidiasari Aristawati, "Project Based Learning Model as an Improvement Effort Concentration, Ability Literacy Vocational School Students' Numeracy and Science Literacy," 2022.

[27] MT Anshori, Ade Mirza, and D. Ahmad, "Analysis Error Student in Solving Story Problems on Comparative Material in Grade VII of Junior High School," 2018.

[28] AN Rahmwati, "Analysis Literacy numeracy ability in Students Grade 5 Elementary School," 2022.

[29] N. Syafriah and M. Sofian Hadi, "Analysis Ability Numeracy in Completing Assessment Questions Minimum Competency (AKM) for Students Class VII SMPN 134 Jakarta," *SUPERMAT Journal of Mathematics Education,* vol. 7, no. 1, pp. 75–91, 2023.

[30] Diyarko and St. B. Waluya, "Analysis Ability Literacy Mathematics Reviewed from Metacognition in Learning Inquiry Helped Worksheets Mandiri Mailing Merge," *Unnes Journal of Mathematics Education Research,* vol. 5, no. 1, 2016, [Online]. Available: http://journal.unnes.ac.id/sju/index.php/ujmer

[31] NZ Salvia, F. Putri Sabrina, and I. Maula, "Analysis Literacy numeracy ability Students Reviewed from Anxiety Mathematics."

[32] S. Ningsih, IBK Gunayasa, and NK Dewi, "The Influence of Literacy Numeracy On Learning Outcomes Mathematics for Students Class III of Lingkok Five Year Elementary School Academic Year 2021/2022," *Journal Scientific Educational Professionals,* vol. 7, no. 3c, pp. 1938–1943, Oct. 2022, doi: 10.29303/jipp.v7i3c.881.

[33] K. Hur, K. Kunci, K. Literacy Numeracy, H. Learning Mathematics, and K. Tinggi, "Relationship between Literacy numeracy ability with Learning Outcomes Mathematics Student High Class," 2023. [Online]. Available: https://ojs.unm.ac.id/jppsd/index

[34] D. Oleh and T. Awalia Khairun Nisa Murtaplah, "Development Literacy and Numeracy in the Learning and Teaching Process Various Subjects."

[35] R. Usgianti, "Strengthening Literacy Numeracy with Shell Media in Differentiated Science Learning Integrated PSE," *IGI SINERGITAS: Jurnal Pendidikan,* vol. 1, no. 1, pp. 25–30, 2023, [Online]. Available: https://ejournal.igiinhil.id

[36] MR Mahmud and IM Pratiwi, "Literacy Numeracy Student in Solution Unstructured Problems," *KALAMATIKA Journal of Mathematics Education,* vol. 4, no. 1, pp. 69–88, 2019, doi: 10.22236/KALAMATIKA.vol4no1.2019pp69-88.

[37] M. Kartikasari, TA Kusmayadi, and B. Usodo, "Assessment Of Exam Questions Quality According To Cognitive Domain Of Bloom's Taxonomy."

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