Evaluation Of Mathematics Learning In Elementary School Grade IV: The Importance Of Numeracy

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Abstract. The obligation of a teacher in improving the learning process is to compile an assessment. This study aims to describe the evaluation of the assessment of learning for class IV mathematics learning on numbers material. This research method uses a descriptive method. The subjects of this study were 14 students of grade IV elementary school consisting of 8 men and 6 women. The data in this study consisted of mid-examination questions, answer sheets, and the results of interviews with teachers and students. Based on the results of the assessment carried out, the average processed is 58. The number of students who have a score >70 is 3 students, while those who get a score ≤70 are 11 students. Based on the results of the assessment and interviews that have been carried out, mathematics learning on the number material and place values has not been mastered by students, some of the factors that cause this to happen are: 1) the learning process that still prioritizes remembering skills, so that the learning carried out has not been meaningful by students; 2) lack of application in daily life; 3) the lack of material meaning across sciences, and 4) Assessment items are generally at a low cognitive level. The main goal of learning mathematics is to develop problem-solving skills. For this goal to be achieved, the process of learning mathematics must be to relate to everyday life and also across sciences. This mathematics learning process is called numeracy.

Keywords: assessment of learning, elementary students, Numeracy.

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INTRODUCTION

Assessment is an integral part of learning (Mustika et al., 2021). Assessment is also used to find out the strengths and weaknesses of the learning process, this can then be used as a basis for decision making, such as: whether the learning process is good and can be continued, or needs improvement and improvement (Winaryani, 2018). One of the learning assessments that can be developed is that the assessment of learning is the same as the summative assessment. The assessment of learning is essentially a summative assessment (Hadiana, 2015). Assessment of learning is the process of collecting and interpreting evidence for the purpose of summarizing assessments, awarding points each time, making judgments about the quality of student learning based on assessment criteria, and presenting scores that indicate student quality (Rosana et al., 2020). According to its usefulness, summative assessments are carried out at certain times, for example midterm, end of semester, class increase, and end of an education level. The method or instrument used is a standardized test or test. Assessment of Learning is very dominantly carried out by teachers because it has a significant contribution to improving the quality of student learning (Hadiana, 2015). For this reason, teachers need to develop an assessment of learning process, so that they canimprove student learning outcomes.

Learning outcomes are the gateway to the assessment process carried out by teachers. Learning outcomes are the abilities that students gain after following the learning process. Assessment or assessment is first carried out before receiving learning results. Assessment is also referred to as proses where teachers collect data to obtain informationthat helps determine student learning outcomes (Kunanti, 2020). Assessment can be a measure of the quality of education delivery, because the data collection in assessment helps determine the acquisition of student learning outcomes (Mustika et al., 2021). Assessment is carried out at the end of learning, in order to improve the learning process a teacher must organize an assessment.

The learning process, assessment and learning outcomes of students have a bonded relationship (Andika & Hendri, 2020). The learning process can develop for the better

accompanied by formative assessments. Learning outcomes are obtained from summative assessments that are formal. This is in line with the research of Gezer et all (2021) that there is an empirical relationship between formative assessment and summative assessment in students in elementary school. While it is known that formative assessment data can be a significant predictor of summative assessment for primary and high school students in mathematics (Golden, 2019; Steward, 2016). Thus, the important note is that teachers must use instructional tools correctly based on teaching principles to support student academic achievement (Chen et al., 2020).

However, currently, in Indonesia, in general, the academic evaluation of students in elementary schools is still fixated on summative assessments such as, daily exams, midterm exams, final semester exams. Mundia (2010) argues similarly that ujian dominates the atmosphere in schools and the education system becomes oriented towards it. The questions on the exam also have different materials, especially in learning mathematics (numbers and their operations; fractions and their operations; algebra; geometry; measurements and data) where the teacher has not been able to see the actual ability of the child in each of these question items (Matone et all, 2018). So teachers still find it difficult to link summative assessment and formative assessment to the actual learning process and student mathematics learning outcomes (Black, Harrison, Hodgen, Marshall, & Serret, 2010; Harlen, 2013).

The purpose of the study relates learning outcomes (summative assessment) to the learning process (formative assessment) in the material of grade IV elementary school numbers. The root of the problem to be described is related to the learning method, the use of media and / or teaching aids used, and also the cognitive level to be achieved in the process of learning mathematics. In addition, this study will look at the importance of numeracy in the development of students' mathematics learning skills, especially in problem-solving skills.

METODE

This study used aqualitative descriptive type of research. Qualitative research is holistic research in the form of words and language in a special context by applying various scientific methods to perceptions, motivations, behaviors, and other phenomena related to the experience of the subject describedin the form of language (Andika & Hendri, 2021). The research subjects involved in this study were grade IV students of SDN 03 Pakan Sinayan as many as 14 grade IV elementary school students consisting of 8 men and 6 women. The data from this study consisted of grade IV midterm questions, answer sheets, and interviews with teachers and students. The teacher and student interview guidelines can be seen in Table 1. Midterm exam instruments can be seen in Table 2.

Table 2. Teacher and Student Interview Guidelines

Variable	Sub Variables	Indicators
Learning Methods	Teacher Center	• Teachers explain more about the learning material • Passive students • Student activities around writing summaries and doing questions • Glued to a teacher's book or a student's book
	Student Center	• The teacher provides time for students to explore and construct knowledge • The learning process is carried out in groups • Students are given the opportunity to convey ideas related to the material studied
Learning Media	Constructing Knowledge	• There are learning media that support students to find, process, and analyze information on the material studied • Using interactive learning media

Variable	Sub Variables	Indicators
		• Learning media stimulate students to construct knowledge
Learning Resources	Diverse learning resources	• Using diverse learning resources • Utilizing the surrounding environment in teaching and learning activities (mathematics) • Utilizing the community in the learning process • Utilizing activities at home in the learning process • Using data related to economic problems, weather, health, natural disasters, the environment, etc.
Evaluation	Formative	• Evaluating the learning process that has taken place • There are efforts to improve the learning process • Conduct short interviews with students who have learning difficulties • Studentsconduct *self-assessments* periodically.
	Summative	• There are periodic assessments • There is a HOTS question item in each summative assessment • Evaluate exam results

Table 3. Midterm Exam Instruments

Measured competence	Number of questions	Problem Form
Read number symbols	5	1 Multiple Choice 2 True-False 1 Short Answer 1 Essay
Write down the symbol of a number	1	1 Multiple Choice
Place value	6	1 Multiple Choice 2 Matchmaking 1 True-False 1 Short Answer 1 Essay
Rearrange numbers	2	1 Multiple Choice 1 Short Answer
Comparing numbers	3	1 Multiple Choice 1 Matchmaking 1 True-False
Addition and Subtraction of numbers 10,000 to 600,000	3	2 Essay 1 Matchmaking

RESULT

Details of the results of the summative assessment in grade IV students in the number material can be seen in table 3.

Table 3. Details of the results of the summative assessment of grade IV students on the number material

Measured competence	Number of questions	Problem Form	Number of students who answered correctly
Read number symbols	5	1 Multiple Choice 2 True-False 1 Short Answer 1 Essay	12 11/11 11 5
Write down the symbol of a number	1	1 Multiple Choice	13
Place value	6	1 Multiple Choice 2 Matchmaking 1 True-False 1 Short Answer 1 Essay	9 8/8 7 3 4
Rearrange numbers	2	1 Multiple Choice 1 Short Answer	9 3
Comparing numbers	3	1 Multiple Choice 1 Matchmaking 1 True-False	11 13 10
Addition and Subtraction of numbers 10,000 to 600,000	3	2 Essay 1 Matchmaking	2/4 13

Based on table 3, we can see that each competency measured by multiple choice, right-wrong, and matchmaking question types of > 57% students answers appropriately. However, on the question of description by measuring the same competence < 36% students are able to answer correctly. In the type of question of competence in reading the emblem, 78.57% of students can get it right. However, in the question of short fill-in-type questions on the competence of place values and sorting numbers only 21.42% answered correctly.

From the test results, it can be seen that the learning results on the measured competencies such as reading number symbols, place values, sorting numbers, and summation are still low. Especially on questions with short fill types and descriptions. Under these conditions, if the school sets the minimum completion standard at 71, then only 3 people meet, while the other 11 students are still below the minimum minimum level that has been set.

Through the results of interviews with teachers and students, several symptoms (phenomena) were found: 1) the learning process that still prioritizes the skill of remembering, so that the learning carried out has not been meaningful by students, so that students tend to be sleepy during the learning process (teacher center); 2) the lack of application of number material and the value of places in life close to students; 3) the lack of meaning of the material of numbers and the value of places on the cross-science, the teacher does not associate the material of numbers with other subjects ; 4) Points of assessment in general at a low cognitive level, teachers have not developed HOTS questions; 5) students do not understand the material that the teacher is reproducing because the teacher is only focused on using the lecture method during learning. Based on the phenomena that the researcher described above, researchers can see a problem that in the end the problem will have a bad impact on student learning outcomes. One alternative that can be used in overcoming this problem is the use of varied learning methods, the use of media and / or teaching aids that are in accordance with the material and the importance of improving students' numeracy literacy skills, because it is very useful in problem solving.

The results obtained in this study are consistent with previous studies, suggesting that student learning success depends on the methods and media of teaching aids used by teachers.

Learning that does not use tools makes students think abstractly and will create verbalism. Learning that only uses the lecture method, sitting, listening, taking notes and memorizing will make learning meaningless. That is why direct learning experiences are needed, so that student learning becomes meaningful so that learning outcomes will optimal (Kania, 2018)The results of subsequent studies show that higher numeracy skills support higher learning achievement, and vice versa lower numeracy skills will be related to low student learning achievement (Anderha & Maskar, 2021). Other research results also state that the importance of numeracy literacy supports the government's efforts to drive literacy in schools by creating a golden generation in the 21st century. Numeracy literacy skills can also improve students to be able to overcome problems by processing numbers correctly. Numeracy literacy is taught to students not only in mathematics subjects alone, but also taught through various other subjects to apply mathematics in different situations (Han Weilin, 2017 ; Suswandari, 2018; Prime & Suswandari, 2021).

DISCUSSION

Mathematics is a compulsory subject in elementary school. Mathematics is seen as a very important branch of science in life, since it is directly related to life. Mathematics is one of the subjects taught in formal educational institutions and is an important part of efforts to improve the quality of education (Perdana & Suswandari, 2021). But in its application in schools all its learning is in the form of theory. Learning dominated by theory will make students bored, so students are not motivated to be actively involved in the learning process, because students are only at the level of memorization. Fun learning makes students happy and motivates them to learn, in the nature of such a learning environment, it is essential to create excellent students (Mailani, 2015). In order for learning to be easier and more enjoyable the teacher should give his concrete example in the life of the student. Matemat ika learningis transmittive which means that teaching applies concepts directly to students (Mbagho & Tupen, 2021).

One of the abilities that students must have in order to solve mathematical problems is numeracy literacy skills. Numericalliteracy is defined as a person's ability to use logical reasoning (Ekowati, 2015 et al., Puspaningtyas, 2020). Reasoning means analyzing and understanding a statement, by manipulating symbols and mathematical language found in everyday life, and expressing the expression in writing and orally (Perdana & Suswandari, 2021). Numerical literacy is also defined as the ability to learn, interpret, use, and communicate various aspects of mathematics (numbers and symbols) to solve real-world problems in everyday life (Winarni, 2021; Latifah & Rahmawati, 2022). Mathematicsliteracy helps a person understand the role or use of mathematics in everyday life (Puspitasari *et al*, 2015 ; Puspaningtyas, 2020).

Numeracy consists of three aspects in the form of numeracy relations, numeracy, and arithmetic operations (Purpura, 2009; Tyas & Pangesti, 2018; Dafit & Ramadan, 2020). Numeracy is the ability to count an object orally and the ability to identify the sum of objects. Numeracy relations refer to the ability to distinguish the number of objects such as more, less, taller, or shorter. While arithmetic operations are the ability to perform basic mathematical operations in the form of addition and subtraction. The three aspects of numeracy literacy that have been described above are fundamental aspects in mathematics learning that must be introduced from an early age to entering low grades (Mahmud & Pratiwi, 2019).

The importance of numeracy literacy skills can be observed through the following example, a student learns the concept of multiplication of integers by integers. Two times three is six. The result remained the same even though the question was replaced by three times two. However, it will be different when administered in a situation of drug administration. The rule of administration of the drug twice three with three times two will give a different absorption and healing effect. With a good mastery of the concept of integer multiplication and numeracy ability, students will be able to explain the reasons why the absorption effect of the drug is different. Another example in a different situation, the bus that will be used in study tours has a capacity of 48 people. If the participants of the tourist study turned out to be 165 people then how to streamline the cost of the bus?. In this question, students learned to realize that although the result of 165:48 is 3.44 but in the tourist activity requires at least four tourist buses. The concept of rounding numbers is not used in this problem. Furthermore, in order for the cost to be efficient,

the capacity of the fourth bus was chosen according to the shortage of seats of participants instead of using four buses with a capacity of 48 people (Tyas & Pangesti, 2018; Prime & Suswandari, 2021).

In addition, numeracy is very important to do at home with the help of parents because students who practice numeracy at home have a positive effect on their initial numeracy skills (i.e., addition and subtraction), and thus improve their mathematical performance later. Since students with higher mathematical competence tend to have a higher readiness to learn mathematics, they can learn advanced mathematical concepts more easily than students with low mathematical abilities (Jordan et al., 2010 ; Hwang 2020). The use of teaching aids in the classroom also plays an important role in instilling knowledge in mathematics learning because it can make it easier for students to understand the subject matter (Brown, 2000). The assessments carried out in learning are very useful in determining student success in learning. The same assessment, and the same assessment results, can support both formative and summative conclusions. It is also worth noting that what is important here is not the consistency of interpretation of student performance. Different individuals (teachers, peers, learners) may interpret the results of the same assessment differently, and this may lead to different instructional decisions, but if they are equally effective, then the interpretations will be equally valid – summative assessments are validated by consistency of interpretation across different interpreters, whereas formative assessments are validated in terms of consequences for student learning (William, 2017).

CONCLUSION

The results of the summative assessment carried out can be a guide for teachers in evaluating the learning process that has been carried out. When student learning outcomes are low, it means that meaningfulness in the learning process needs to be improved. Repeat the process of learning mathematics close to students' daily activities. Learning mathematics with material that is actually easy will still be difficult for students to understand, when the learning process is only at the level of memorizing. The main goal of learning mathematics is to develop problem-solving skills. In order for this goal to be achieved, the process of learning mathematics must relate it in everyday life and also across sciences. This process of learning mathematics is called numeracy literacy.

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