OPTIMIZING THE UNDERSTANDING OF INTEGERS WITH AN ECONOMIC APPROACH TO IMPROVE THE MATHEMATICS LEARNING OUTCOMES OF SEVENTH GRADE STUDENTS AT MTS PSM SUGIHWARAS

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ABSTRACT

Integers are a fundamental topic in mathematics that are often considered abstract by students, especially at the junior high school level, which makes it difficult to understand the material. In fact, the concept of integers has many connections to everyday life, such as economic activities involving profit and loss in business, debts, and repayments. This study aims to examine the effectiveness of the economic approach in teaching integers on improving the mathematics learning outcomes of seventh-grade students at MTs PSM Sugihwaras. The research method used is Classroom Action Research with 2 cycles. The research subjects were seventh-grade students in class VII-A at MTs PSM Sugihwaras, totaling 22 students. Out of a total population of 45 students in the seventh grade, through the implementation of economic-based contextual learning, students were invited to understand integers through simulations of simple economic activities. The results of the study showed that this approach was able to improve learning outcomes.
Keywords: *Integers, Economic Approach, Mathematics Learning Outcomes*

A.   INTRODUCTION

Integers are one of the fundamental concepts in mathematics learning at the Madrasah Tsanawiyah (MTs) level that are essential for students to master. For Grade VII, equivalent to junior high school, the material on integers is not new to students because it has been studied in previous educational stages (elementary school). However, due to its abstract nature and difficulty in relating to everyday life contexts, students find it hard to understand. Moreover, teachers often focus solely on the methods presented in the book and rarely use real-world contexts as a learning framework for students. This can be seen from the integer test results of 22 students, where 13 students, or 59.1%, did not achieve the Minimum Mastery Criteria (KKM), and 9 students, or 40.9%, passed the KKM (the KKM is set above 70). Therefore, the researcher has an idea or method to optimize learning by using an economic approach, which is considered to be an effective solution to improve the mathematics learning outcomes of MTs students. According to Pranoto (2023), Learning outcomes refer to the achievements of students in learning, as measured by evaluations and expressed in the form of scores or grades.

The economic approach in teaching integers places mathematical concepts in the context of real-world economics that students encounter daily, such as profit-loss calculations, debt-payment, and buying-selling transactions involving positive and negative numbers. According to Richard H. Thaler (2021), the economic approach in mathematics learning can enhance students' financial literacy and critical thinking skills. This helps students understand and apply integers in real life, so that learning integers is no longer considered abstract and difficult. In addition to improving understanding, the economic approach can also encourage increased student motivation and active engagement in the learning process. Students are trained to apply integer concepts in solving relevant economic problems, thereby effectively developing their mathematical thinking skills such as analysis, inference, and problem-solving.

The urgency of this research lies in the fact that integer mastery serves as the foundation for more complex mathematical concepts, including algebra, equations, and problem-solving procedures in higher grades. If students at the MTs level continue to struggle with integers, this learning gap may hinder their readiness to understand subsequent mathematical materials.(Syamsul Arifin et al., 2018) Moreover, the increasing importance of financial literacy in the 21st century demands that students not only understand mathematical operations but also possess the ability to interpret and apply them in real economic situations (Syamsul Arifin et al., 2025). This aligns with the educational paradigm that emphasizes contextual, meaningful, and applicable learning. However, despite its relevance, the integration of economic contexts in mathematics learning—especially in integer lessons—has not been widely explored in MTs classrooms. Existing studies mostly focus on conventional contextual teaching or Problem-Based Learning without specifically utilizing economic scenarios that are close to students' daily financial experiences (Arifin et al., 2023). In addition, previous research tends to examine learning outcomes conceptually, with limited evidence on how economic activities can systematically support students' understanding of positive and negative numbers. This creates a research gap that needs to be addressed. Thus, the research gap identified includes: (1) Limited application of economic contexts as an instructional approach in teaching integers at the MTs level. (2) A lack of empirical evidence regarding the effectiveness of economic-based learning models in improving students' mastery of integers and their financial literacy simultaneously. (3) Minimal exploration of students' cognitive processes when solving integer problems within economic scenarios.

Based on the issue, therefore, optimizing the understanding of integers through an economic approach can significantly improve the mathematics learning outcomes of MTs students.This approach not only makes learning more interesting and applicable but also equips students with practical skills essential for everyday life, particularly in personal financial management and basic economic understanding. By relating integer material to economic aspects familiar to students, learning becomes more meaningful and relevant.

B. RESEARCH METHOD

This research was conducted in class VII-A with a total of 22 students from a total population of 45 students in grade VII. The research was carried out during class hours. The research design was a classroom action research using the Kemmis and McTaggart model, which begins with planning, implementation, observation, and reflection. The design or plan of action for improvement to be implemented in the teaching and learning process. The activities carried out were: (1) preparing a plan for learning improvement with an economic approach, (2) preparing learning media to be used, (3) designing and preparing instruments/observation sheets as guidelines, (4) preparing and arranging evaluation tools to measure students' abilities in the subject of integers, (5) conducting reflection.

The implementation of learning improvement research in this study was carried out in three stages: preliminary activities, core activities, and closing activities. In the preliminary activities, the teacher starts by preparing and conditioning the students physically and psychologically to be able to participate in the learning process. After that, the activity continues with conducting apperception through questions and answers about the previous material and conveying the learning objectives as well as the material to be studied. In the core activities, the teacher explains the material. Counting operations with integers are taught using an economic approach and related to daily life. After that, the teacher divides the students into several groups, each consisting of 4-5 students. The students discuss to solve the problems given by the teacher, and the teacher guides the students during the discussion. Then, once completed, the students are directed to present in front of the class. In the closing activity, the teacher summarizes the lesson learned and then provides evaluation questions in the form of essay questions to measure the students' understanding of the material that has been studied.

C. RESEARCH & DISCUSSION RESULTS

a. Pra cycle

Based on the scores obtained in the pre-cycle as shown in Table 1, a frequency table can be created as follows.

Tabel 1. Pre-cycle Percentage (Pre-Research)

No	Nilai	Frekuensi	Presentase
1	31-40	4	18,2%
2	41-50	4	18,2%
3	51-60	3	13,6%
4	61-70	2	9,1%
5	71-80	6	27,3%
6	81-90	3	13,6%
	Total	**22**	**100%**

sources processed by researchers (2025)

Based on the pre-cycle score data shown in Table 1, the data can be presented as in Table 2 below:

Tabel 2. Recapitulation of pre-cycle scores

Lowest Score	40
High Score	85
Average Score	60,9
Student who pass	9 student
Percentage of Student who pass	40,9%

sources processed by researchers (2025)

Based on the results of the pre-cycle, it can be concluded that many students still scored below the KKM, which is 70. From these results, only 9 students or 40.9% scored above the KKM, with a class average of 60.9, and 13 students have not yet achieved completeness, or 59.1%.

b. Cycle I

Based on the scores obtained in cycle I as shown in Table 3, a frequency table can be created as follows.

Tabel 3. Recapitulation of Cycle 1 scores

No	Nilai	Frekuensi	Precentage
1	41-50	3	13,6%
2	51-60	4	18,2%
3	61-70	3	13,6%
4	71-80	8	36,4%
5	81-90	4	18,2%
	Total	**22**	**100%**

sources processed by researchers (2025)

Based on the cycle I score data found in Table 3, data can be created as shown in the following table.

Tabel 4. Recapitulation of Cycle 1 scores 1

Lowest Score	45
High Score	88
Average Score	68,2
Student who pass	12 student
Percentage of Student who pass	54,5%

Sources processed by researchers (2025)

Based on the results from cycle 1, it was obtained that 12 students, or 54.5%, achieved learning completeness, while the students who had not yet achieved completeness were 10 students, or 45.5%. If the pre-cycle data is compared with the cycle 1 data, it

can be seen in the following table 5.

Tabel 5. Comparison of Pre-cycle and Cycle 1

	Pra Siklus	Siklus 1
Lowest Score	40	45
High Score	85	88
Average Score	60,9	68,2
Student who pass	9 student	12 siswa
Percentage of Student who pass	40,9%	54,5%

Sources processed by researchers (2025)

From the comparison between the pre-cycle and cycle 1, it can be concluded that students' learning outcomes improved, as evidenced by an increase in the number of students who passed in cycle 1, from 9 students or 40.9% to 12 students or 54.5%, and the average score also increased from 60.9 in the pre-cycle to 68.2 in cycle 1.

c. Cycle II

Based on the value data obtained in cycle II, data can be created as in table 6 below.

Tabel 6. Frequency of data for cycle II values

No	Nilai	Frekuensi	Precentage
1	51-60	1	4,5%
2	61-70	6	22,7%
3	71-80	10	45,5%
4	81-90	5	27,3%
	Total	**22**	**100%**

Sources processed by researchers (2025)

Based on the cycle II score data presented in Table 6, data can be compiled as shown in the following table..

Tabel 7. Recapitulation of Cycle II scores

Lowest Score	60
High Score	90
Average Score	74,1
Student who pass	15 student
Percentage of Student who pass	68%

Sources processed by researchers (2025)

Based on cycle II, the measurement results in cycle II showed that 15 students or 68% had achieved learning completeness, while 7 students had not yet reached learning completeness, accounting for 32%.

Tabel 8. Comparison of Pre-cycle, Cycle 1, and Cycle II

	Pra Cycle	Cycle 1	**Cycle II**
Lowest Score	40	45	50
High Score	85	88	90
Average Score	60,9	68,2	74,1
Student who pass	9 student	12 student	15 student
Percentage of Student who pass	40,9%	54,5%	68%

Sources processed by researchers (2025)

Based on the data obtained from Table 8, the completeness of student learning outcomes has increasingly improved from the pre-cycle with 40.9% of students completing with a class average score of 60.9, improving in Cycle I to 54.5% of students completing with a class average score of 68.2, and then further improving in Cycle II to 68% of students completing with a class average score of 74.1.

D. CONCLUSION

Based on the results of improvements in the learning process carried out in two cycles in the mathematics subject on the topic of integer operations using an economic approach for seventh-grade students at MTs PSM Sugihwaras in the 2025/2026 academic year, it can be concluded as follows: 1) The use of the economic approach can improve students' learning outcomes in mathematics. Initially, the average student score was 60.9, which increased to 68.2 in cycle I and further to 74.1 in cycle II; 2) The use of the economic approach also improves learning outcomes in terms of student completeness. Student completeness in the pre-cycle was 40.9% (9 students), increased to 54.5% (12 students) in cycle I, and further increased to 68% (15 students) in cycle II..

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