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Utilization of Kartu Amalan Media to Improve Mathematics Learning Outcomes of Grade VI Students on Integer Numbers

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Abstract

This study aims to improve the learning achievement of sixth-grade students at SD Islam Sabilillah Malang on integer material through the implementation of the Think Pair Share (TPS) learning model assisted by Kartu Amalan media. Kartu Amalan consists of Kartu Kebaikan representing positive integers and Kartu Kekurangan representing negative integers, making the abstract concept of integers more concrete and meaningful for students. This study employed a Classroom Action Research (CAR) design consisting of two cycles. Data were collected through student activity observation sheets and AKM-based written tests. The results showed an increase in the average learning achievement score from 67.32 (pre-cycle) to 79.00 in cycle I and 83.19 in cycle II. The percentage of students who met the minimum learning objective criteria increased from 38.71% to 87.09%. Student activity on Think, Pair, and Share indicators also improved significantly in each cycle. It is concluded that the TPS learning model assisted by Kartu Amalan media is effective in improving students' mathematics learning achievement on integer material.

Keywords: Think Pair Share; Learning Achievement; Kartu Amalan; Integer; Classroom Action Research

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INTRODUCTION

Education is the primary foundation for developing quality human resources. Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System affirms that education functions to develop abilities and shape the character and civilization of a dignified nation in order to advance the nation's intellectual life. The goal of national education is to develop the potential of students to become faithful, pious, noble, healthy, knowledgeable, capable, creative, independent, and democratic and responsible citizens.

Mathematics is a subject that plays a strategic role in developing students' logical, systematic, critical, and creative thinking skills. Mathematics is a science concerned with ideas, concepts, and concepts that are structured hierarchically and systematically (Aulia, 2025). Mathematics lessons are taught starting in elementary school to enable students to solve various problems in everyday life, in accordance with the mandate of Minister of National Education Regulation Number 22 of 2006 concerning Content Standards. However, the reality on the ground shows that most students still experience difficulties and consider mathematics a difficult and unpleasant subject.

One of the mathematical materials that often becomes an obstacle for elementary school students is integers, especially arithmetic operations involving negative numbers. The concept of negative numbers is abstract and difficult for students to imagine if it is only presented procedurally without a concrete context. This is evident from the results of initial observations and pre-learning conducted on sixth grade students of Sabilillah Islamic Elementary School, Malang: the average student score on integer material only reached 67.32, with 61.29% of students not yet reaching the Learning Objective Completion Criteria (KKTP) set at 77. The learning process is still dominated by lecture methods, so students tend to be passive and less involved in critical thinking activities and discussions.

To address these issues, innovative learning models are needed that can encourage student engagement and collaboration. One model considered effective is Think Pair Share (TPS). This model was introduced by Lyman (1981) and consists of three main stages: Think (individual thinking), Pair (pair discussion), and Share (sharing ideas with the group). Through these three stages, students have the opportunity to develop conceptual understanding, practice mathematical communication skills, and develop confidence in expressing opinions (Trianto, 2009).

To facilitate a more concrete understanding of the concept of integers, researchers integrated the TPS model with an innovative learning medium called the Practice Cards. This medium is inspired by the concept of virtues and shortcomings in everyday life. The Kartu Amalanconsist of two types: (1) the Good Cards, which are green and represent positive integers; and (2) the Disadvantage Cards, which are red and represent negative integers. By using the Practice Cards, students can perform addition and subtraction operations of integers in a concrete and contextual manner, allowing the abstract concept of integers to be represented visually and tactilely. Research by Astuti, Nurdiana, Bahari, and Warneri (2024) demonstrated that the use of innovative media in elementary school mathematics learning significantly improved student learning outcomes, with a statistical significance value below 0.05. This finding reinforces the importance of selecting appropriate media as a key component of successful mathematics learning (Tirtoni & Kurniawan, 2022).

Furthermore, Fajarianto et al. (2025) emphasized that learning in elementary schools needs to be designed with an approach oriented to the diverse needs and learning styles of students, so that each student receives a meaningful learning experience aligned with their potential. This principle underlies the selection of the TPS model, assisted by the Practice Cards, in this study. Each Think, Pair, and Share stage provides space for students to learn individually and collaboratively according to their individual pace and abilities.

Several previous studies also support the effectiveness of the TPS model. Sholichah et al. (2022) demonstrated that the TPS model significantly influenced elementary school student learning outcomes. Rachmawati and Erwin (2022) demonstrated that TPS (Transaction Planning) combined with learning media can optimally improve elementary school students' learning outcomes. Zain and Ahmad (2021) also found that TPS has a positive effect on elementary school students' motivation and mathematical communication skills. Meanwhile, Mandasari and Rosalina (2021) identified that students' difficulties in solving integer operations in elementary school need to be addressed with a more active and contextual learning approach. Dewi and Dharsana (2020) also demonstrated that implementing TPS can significantly improve student learning outcomes. Sumarsya and Ahmad (2020) demonstrated that TPS is effective in increasing student motivation in learning. Sholeha et al. (2019) demonstrated that the use of a cooperative model assisted by manipulative media in CAR has been proven to consistently improve students' mathematics learning outcomes from one cycle to the next. Based on this background, the purpose of this study is to describe the implementation of the TPS model assisted by the Kartu Amalan that can improve the learning outcomes of sixth-grade students at Sabilillah Islamic Elementary School, Malang, on integers.

RESEARCH METHODS

This study is a Classroom Action Research (CAR) aimed at improving learning processes and outcomes through the application of the Think Pair Share (TPS) model, aided by the Practice Cards, to the topic of integers. CAR is a form of research conducted by teachers in their own classrooms with the aim of systematically and sustainably improving the quality of learning processes and outcomes (Arikunto, 2021). CAR requires teachers to engage in continuous self-reflection to identify weaknesses in their learning practices and design appropriate improvements (Akbar, 2009). Similarly, Creswell (2012) asserts that action research is a systematic procedure undertaken by educators to gather information about their own learning practices, with the ultimate goal of improving the quality of education and teacher professional development.

The main characteristic of CAR is its cyclical and spiral design (see Figure 1). According to Kemmis and McTaggart (in Creswell, 2012), each cycle in PTK consists of four interconnected stages, namely: (1) Planning, (2) Acting, (3) Observing, and (4) Reflecting. The results of reflection from one cycle become the basis for improving planning in the next cycle, thus forming a continuous spiral of improvement until the research success indicators are achieved.

The Planning stage is the initial stage in which the researcher and the class teacher identify learning problems, determine action objectives, and develop learning tools including a Lesson Implementation Plan (RPP), student worksheets assisted by the Practice Cards, and observation instruments. The Acting stage is the implementation of learning according to the prepared plan, where the teacher applies the TPS model by integrating Kartu Amalan as a concrete medium at each Think, Pair, and Share stage. The Observation stage is carried out simultaneously with the implementation of the action, where observers record data on teacher and student activities using a prepared observation sheet. Finally, the Reflection stage is an analysis and evaluation of the results of observations and student learning tests to assess the achievement of the action and formulate corrective steps for the next cycle (Arikunto, 2021; Creswell, 2012).

The research was conducted in grade VI of Sabilillah Islamic Elementary School, Malang, with 31 students as subjects, consisting of 16 male students and 15 female students with heterogeneous characteristics. The research was conducted in two cycles, where each cycle consisted of three meetings, each meeting held for 2 lesson hours.

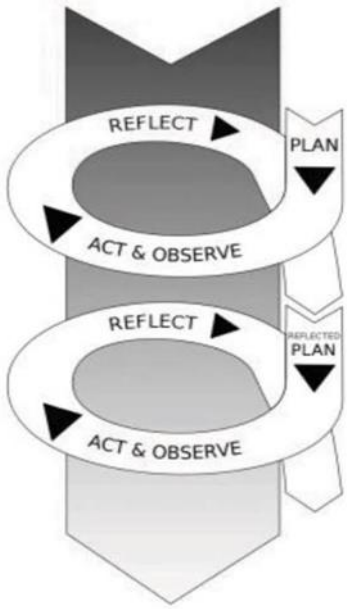

Figure 1. Classroom action research cycle (Kemmis and McTaggart in Creswell, 2012)

Media Kartu Amalan

"Kartu Amalan" are designed as a concrete tool for understanding the concept of integers. These cards consist of two types: (1) Kartu Kebaikan (green), each with a value of +1, representing positive integers; and (2) Kartu Kekurangan (red), each with a value of -1, representing negative integers. Each pair of Kartu Kebaikan and Kartu Kekurangan cancel each other out (has a value of zero), in accordance with the zero pair principle in mathematics. By using Kartu Amalan, students can directly manipulate the cards to solve addition and subtraction operations of integers, enabling them to grasp abstract concepts visually and tactilely.

Steps for TPS Learning with Kartu Amalan

Think Stage: The teacher presents a contextual problem related to integers (for example: "Andi has 5 Kartu Kebaikan and 3 Kartu Kekurangan. What is the final value?"). Students think independently while manipulating the Kartu Amalan on their desks to find the answer.

Pair Stage: Students discuss with their desk partners. Together, they compare the results of the Kartu Amalan and agree on the correct solution. The teacher acts as a facilitator during the students' discussion and provides guidance as needed.

Share Stage: Representatives of pairs present the results of the discussion and demonstrate the Kartu Amalan in front of the class. Other students respond, and the teacher provides conceptual reinforcement. This activity trains students' mathematical communication skills and self-confidence.

Instruments and Data Analysis

The research instruments consisted of: (1) observation sheets, to record teacher and student activities on each Think, Pair, and Share indicator during the learning process. The observation sheets for the Think indicator included understanding the problem, solving the problem, and using sequential steps. (2) a written test based on the AKM (Minimum Competency Assessment), administered at the beginning and end of each cycle to measure students' mathematics learning outcomes on integers. The results of the observations and tests were analyzed descriptively by comparing the percentage of achievement between cycles. The indicators of research success were defined as follows: (1) the average class score increased from cycle to cycle; and (2) more than 80% of students achieved the set KKTP with score

achievement minimum is 77. Data validity uses data triangulation, namely comparing test results with teacher observation results and the results of the Think, Pair and Share process assessment.

RESULT AND DISCUSSION

Prior to the cycle, a pre-test was conducted to determine students' initial abilities. The pre-test results showed an average score of 67.32, with only 38.71% of students achieving a minimum KKTP score of 77. This indicates a low understanding of integer concepts, which subsequently formed the basis for implementing the TPS model using the Kartu Amalan (Tirtoni & Kurniawan, 2022).

Cycle I

In Cycle I, the teacher introduced the Kartu Amalan and explained how to use them. The teacher then presented contextual problems involving integers, which students solved through the Think-Pair-Share phase using the cards. In the Think phase, students manipulated the Kartu Amalan in dependently. In the Pair phase, pairs discussed the results of their card demonstrations. In the Share phase, a representative pair presented their results. Student activity increased compared to the initial level, but some pairs still struggled during the discussion phase. The assessment results for each Think and Pair phase are presented in Tables 1 and 2, while observations of student activity are presented in Table 3.

Table 1. Results of the Think Indicator Assessment in Cycle I

Cycle	Meeting	Understanding (%)	Ability to Solve Problem (%)	Sequesntial Solution Steps (%)	Avarage (%)
I	1	37,33	46,67	46,67	43,56
	2	49,78	62,22	62,22	58,07
	3	65,33	61,33	56,00	60,89
Average					**54,17**

Table 2. Results of Pair Indicator Assessment in Cycle I

Cycle	Meeting	Answering (%)	Asking (%)	Helping (%)	Avarage (%)
I	1	34,67	40,00	36,00	36,89
	2	46,22	53,33	48,00	49,19
	3	64,00	70,67	38,67	57,78
Average					**47,95**

Table 3. Results of Observations of Student Activities Share Indicator Cycle I

Cycle	Explaining with a Firm Voice (%)	Coherent Explanation (%)	Answering Well (%)	Average (%)
I	76,67	78,00	56,67	70,44

Based on Tables 1–3, the average student activity in the Think indicator reached 54.17%, Pair 47.95%, and Share 70.44%. The results of the final test of Cycle I showed an average score of 79.00, an increase of 11.68 points (17.35%) compared to the initial test of the cycle. However, the percentage of students achieving the KKTP only reached 46.43%, so it is still below the 80% success indicator. Based on field notes, some students still had difficulty solving problems. In addition, some pairs dominated the Pair stage, so the Pair process was less than optimal. This is in line with the findings of Mandasari and Rosalina (2021) who stated that students' difficulties in integer operations cannot be overcome in just one learning cycle, but rather require a gradual approach that consistently involves concrete media. Subiyanto (2014)

stated that in the initial implementation of the TPS model, students needed adaptation time to become accustomed to collaborative thinking patterns. The results of the reflection of Cycle I showed that students needed more practice using the Practice Cards, especially during pair discussions.

Cycle II

Based on the results of the reflection on Cycle I, improvements were made to the actions taken in Cycle II. Planning improvements in Cycle II included improvements to the Pair stage. The teacher provided more intensive guidance to each pair, especially pairs where one student was indicated to be more dominant. The teacher encouraged students to be more active in asking questions and explained the procedures for using the Kartu Amalan to their partners using a peer tutoring concept. The questions were also expanded to include everyday contexts more relevant to students' experiences, such as temperature, debts, and game point acquisition. The results of observations at each TPS stage are presented in Tables 4, 5, and 6.

Table 4. Results of the Think Indicator Assessment in Cycle II

Cycle	Meeting	Understanding (%)	Ability to Solve Problem (%)	Sequesntial Solution Steps (%)	Avarage (%)
II	1	68,00	72,00	60,00	66,67
	2	85,00	85,00	72,50	80,83
	3	95,00	80,00	92,50	89,17
Average					**78,89**

Table 5. Results of Pair Indicator Assessment in Cycle II

Cycle	Meeting	Answering (%)	Asking (%)	Helping (%)	Avarage (%)
II	1	65,33	72,00	54,67	64,00
	2	77,50	77,50	77,50	77,50
	3	80,00	80,00	92,50	84,17
Average					**75,22**

Table 6. Results of Observations of Student Activities Share Indicator Cycle II

Cycle	Explaining with a Firm Voice (%)	Coherent Explanation (%)	Answering Well (%)	Average (%)
II	89,33	86,00	81,33	85,55

Based on Tables 4–6, student activity increased significantly in Cycle II. The Think stage reached 78.89%, the Pair stage 75.22%, and the Share stage 85.55%. The average learning outcome score increased to 83.19, with a completion rate of 87.09% among 31 students. This achievement exceeded the researcher's established success indicator of over 80%. This improvement aligns with the findings of Sholichah et al. (2022), who demonstrated that the TPS model consistently had a significant impact on elementary school student learning outcomes. Rachmawati and Erwin (2022) also demonstrated that integrating the TPS model with learning media resulted in more optimal learning outcomes compared to conventional learning. Zain and Ahmad (2021) emphasized that TPS not only improves cognitive learning outcomes but also fosters students' mathematical communication skills through structured pair interactions.

The use of Kartu Amalan as a concrete medium has been shown to help students construct an understanding of integers independently and collaboratively. The Kartu Kebaikan and Kartu Kekurangan provide a clear physical representation of positive and negative numbers, allowing for intuitive addition and subtraction. This is consistent with the principles of manipulative-

based mathematics learning, where the use of concrete objects can bridge understanding from the enactive to the symbolic level (Tirtoni & Kurniawan, 2022). Sholeha, et.al (2019) also demonstrated in their classroom action research that the use of manipulative media in a cooperative model can gradually and consistently improve students' mathematics learning outcomes from cycle I to cycle II (see Table 7).

Table 7. Summary of Improvements in Students' Mathematics Learning Outcomes

Tahap	Average Value	Students Complete (%)	Increment (%)
Initial Cycle Test	67,32	38,71	-
Cycle I	79,00	46,43	+11,68 (17,35)
Cycle II	83,19	87,09	+4,19 (5,30)

Table 7 shows a consistent increase from the pre-cycle to cycle II. The most significant increase was seen in the completion percentage, from 38.71% to 87.09%, indicating that the TPS model assisted by the Kartu Amalan was able to reach the majority of students in improving learning outcomes. The graph of the average increase and percentage of student completion is presented in Figure 2. These results are supported by the conclusions of research conducted by Dewi and Dharsana (2020) that TPS is consistently effective in improving learning outcomes in various contexts and levels of education. Furthermore, Rachmawati and Erwin (2022) emphasized that the combination of the TPS model with appropriate learning media produces a greater impact than the implementation of TPS without supporting media, as evidenced in this study through the use of Kartu Amalan.

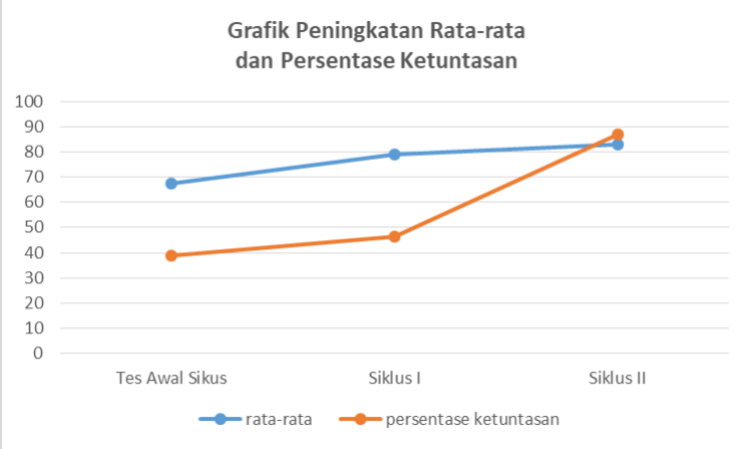

Figure 2. Graph of average increase and percentage of student completion

CONCLUSIONS

Based on the research results and discussion, it can be concluded that the implementation of the Think Pair Share (TPS) learning model, supported by the Practice Cards, has proven effective in improving sixth-grade students' mathematics learning outcomes at Sabilillah Islamic Elementary School, Malang, on integers. The average learning outcome score increased from 67.32 (pre-cycle) to 79.00 (cycle I) and 83.19 (cycle II), with the completion rate increasing from 38.71% to 87.09%.

Kartu Amalan, consisting of Kartu Kebaikan and Kartu Kekurangan, help students understand the abstract concept of integers in a concrete and contextual way. The integration of these media into each stage of Think, Pair, and Share encourages active student engagement, strengthens collaboration between pairs, and improves students' mathematical communication skills. This study recommends the use of the TPS model, supported by concrete media such as Kartu Amalan, for other abstract mathematics materials. Future researchers can develop variations of the Kartu Amalanwith a more interactive design and integrate portfolio assessments to more comprehensively measure the development of students' conceptual understanding.

REFERENCES

Agustina, L., Supriadi, N., & Putra, R. W. Y. (2023). Pengaruh metode permainan kreatif Apiq (Aritmatik Plus Intelegensi Quantum) dengan cara berhitung cepat terhadap kemampuan berpikir kritis matematis. Jurnal Pendidikan Indonesia Didaktika, 1(1).

Akbar, S. D. (2009). Penelitian tindakan kelas. Cipta Media Aksara.

Arikunto, S. (2021). Prosedur penelitian: Suatu pendekatan praktik. Rineka Cipta.

Aulia, A. U. (2025). Efektifitas model pembelajaran Student Teams Achievement Division berbantuan media Jeopardy Games terhadap kemampuan pemecahan masalah matematika siswa kelas V SDN Klepu 05 (Disertasi Doktoral). Universitas Islam Sultan Agung Semarang.

Astuti, Y. D., Nurdiana, Bahari, Y., & Warneri. (2024). Integration of Calculator.oi Application in improving mathematics learning outcomes of students in elementary schools. IJESS International Journal of Education and Social Science, 5(2), 195–201. https://doi.org/10.56371/ijess.v5i2.316

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Pearson Education.

Departemen Pendidikan Nasional. (2006). Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 22 Tahun 2006 tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah. Depdiknas.

Dewi, K. R., & Dharsana, I. K. (2020). Penggunaan teknik Think Pair Share dan teknik Index Card Match dalam Lesson Study mampu meningkatkan hasil belajar siswa. Jurnal Pedagogi dan Pembelajaran, 3(2), 248–258.

Fajarianto, O., Wulandari, D., Setiyowati, A. J., Ayunin, Q., Maryam, S. D., Ayunin, S. Q., & Ismail, A. (2025). Development of differentiated learning model based on gamification for elementary school children. IJESS International Journal of Education and Social Science, 6(1), 62–67. https://doi.org/10.56371/ijess.v6i1.382

Lyman, F. T. (1981). The responsive classroom discussion: The inclusion of all students. Mainstreaming Digest, 109(1), 113.

Mandasari, N., & Rosalina, E. (2021). Analisis kesulitan siswa dalam menyelesaikan soal operasi bilangan bulat di sekolah dasar. Jurnal Basicedu, 5(3), 1139–1148. https://doi.org/10.31004/basicedu.v5i3.831

Rachmawati, A., & Erwin, E. (2022). Pengaruh model pembelajaran Think Pair Share (TPS) berbantuan media video animasi terhadap hasil belajar siswa sekolah dasar. Jurnal Basicedu, 6(4), 7637–7643. https://doi.org/10.31004/basicedu.v6i4.3613

Sholeha, W., Rahaju, & Wulandari, T. C. (2019). Peningkatan prestasi belajar dengan pembelajaran Talking Stick dan media Tangram. Laplace: Jurnal Pendidikan Matematika, 2(2), 81–88. https://doi.org/10.31537/laplace.v2i2.245

Sholichah, L., Rahmawati, E., & Dewi, G. K. (2022). Pengaruh model Think Pair Share terhadap hasil belajar siswa sekolah dasar. Jurnal Basicedu, 6(1), 1037–1045. https://doi.org/10.31004/basicedu.v6i1

Subiyanto, A. (2014). Peningkatan motivasi belajar matematika dengan penerapan model pembelajaran Think Pair Share pada siswa kelas 6 SDN Kayen 01 Semester 1 Tahun Pelajaran 2014/2015 (Skripsi). Universitas Muhammadiyah Surakarta.

Sumarsya, C. V., & Ahmad, S. (2020). Think Pair Share sebagai model untuk meningkatkan motivasi peserta didik dalam pembelajaran. Jurnal Pendidikan Tambusai, 4(2), 1374–1388.

Tirtoni, F., & Kurniawan, M. I. (2022). Buku ajar strategi belajar mengajar di sekolah dasar. Umsida Press.

Trianto, M. P. (2009). Mendesain model pembelajaran inovatif-progresif. Kencana.

Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. (2003). Sekretariat Negara.

Wahyuni, P. (2016). Pengaruh pembelajaran kooperatif tipe Student Teams Achievement Division (STAD) terhadap pemahaman konsep dan komunikasi matematis siswa kelas VIII MTs Negeri Pekanbaru. Kutubkhanah, 19(1), 1–14.

Wulandari, K. (2019). Penerapan model pembelajaran kooperatif tipe Think Pair Share (TPS) untuk meningkatkan pemahaman konsep matematis siswa kelas VII2 SMP Muhammadiyah 1 Pekanbaru (Skripsi). Universitas Islam Riau.

Zain, B. P., & Ahmad, R. (2021). Pengaruh model kooperatif tipe Think Pair Share terhadap motivasi dan kemampuan komunikasi matematis siswa sekolah dasar. Jurnal Basicedu, 5(5), 3668–3676. https://doi.org/10.31004/basicedu.v5i5.1408