Literasi Nusantara
vol.6 no.3, Juli– Oktober 2026
https://journal.citradharma.org/index.php/literasinusantara

ISSN 2746-8208 (Online)
ISSN 2746-3575 (Print)

Application of The Student Team Achievement Division Model to Improve Learning Outcomes of Class V Angle Material

Jefrianus Putra Zebua[1], Karina Nurohma Dayani [2], Anisa Saskia Putri[3], Itsna Zulfatul Tsaniyah[4], Esteni Sallah[5], Neni Novitasari [6].

[1] Universitas Karabük Türkiye, Türkiye.
[2,3,4,5]Universitas Trunodjoyo Madura, Bangkalan, Indonesia.
[6.]Universitas Borneo Tarakan, Kalimantan Utara, Indonesia.

fzebua9@gmail.com, karinaday101@gmail.com,anisasaskia057@gmail.com, itsnazulfatultsaniyah@gmail.com, estenisallah@gmail.com, novitasari_neni@borneo.ac.id .

DOI : https://doi.org/10.56480/jln.v6i3.35

Received: Mei 05, 2026
Revised: Juni 07, 2026
Accepted: Juli 07,2026

Abstract

This study aims to improve students' understanding of multiplication concepts through the application of a concrete learning model. The research employed a Classroom Action Research design conducted in two cycles, involving 21 third-grade elementary school students. Data were collected through observation, tests, and interviews.The findings indicate a significant improvement in students' conceptual understanding of multiplication. The average test score increased from 60.2 in Cycle I to 82.5 in Cycle II. Additionally, the percentage of students achieving mastery learning improved from 52% to 90%, meeting the predetermined success criteria. Qualitatively, students showed increased engagement, participation, and confidence during the learning process. The use of concrete objects in the learning model helped students understand abstract mathematical concepts more effectively and created a more interactive and meaningful learning environment. Therefore, the concrete learning model is effective in improving students' understanding of multiplication concepts and can be used as an alternative instructional model in elementary mathematics learning.

Keywords:*Concrete Learning Model, Multiplication Concepts, Elementary Students, Conceptual Understanding, Mathematics Learning*

Literacy of the Archipelago. vol.6 no.3, Juli– Oktober 2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

1. Introduction

Education is not merely a process of transferring knowledge, but a systematic effort to develop students' potential so that they become competent individuals who can contribute to society. In the context of elementary education, learning should not only focus on memorization but also emphasize meaningful understanding and the development of thinking skills. Therefore, the learning process needs to be designed innovatively to accommodate students' diverse characteristics and learning needs.

Mathematics plays a crucial role in developing logical, analytical, and systematic thinking skills. It is not only important in academic contexts but also in daily life activities such as counting, measuring, and problem-solving. However, many elementary school students still perceive mathematics as a difficult and less engaging subject. Previous studies have shown that students often experience difficulties in understanding basic mathematical concepts, particularly multiplication (Lintang Kusuma Wardani et al., 2024).(Khotimah et al., 2024.)

In many cases, multiplication is taught as a memorization task rather than a conceptual understanding process. As a result, students tend to forget multiplication facts easily and struggle to solve problems that require deeper understanding. This condition affects students' confidence, participation, and engagement in the learning process(R.S.W. Putri et al., 2024) Classroom observations and discussions with teachers also reveal that students face additional challenges such as limited reading ability, low concentration, and dependency on peers, which further hinder their learning (Irma Ardiningrum et al., 2025.)

Teachers have attempted to apply various instructional methods, including direct instruction, question-and-answer sessions, quizzes, and the use of visual media. However, these efforts have not yet produced optimal results, as some students remain passive and fail to fully understand the material (Ani Arlinah et al., 2021; (Santoso, n.d.; Puspitarani & Rokhmaniyah, n.d.), This issue is closely related to the abstract nature of mathematics, which is not aligned with the cognitive development stage of elementary school students, who are in the concrete operational

stage and learn more effectively through direct experiences and real objects (Irma Ardiningrum et al., 2025.)

Previous studies have explored the use of concrete learning or manipulative media to improve students' understanding of mathematical concepts. However, most of these studies focus on the use of media as a supporting tool rather than as a structured instructional model. In addition, limited research integrates concrete learning with a systematic learning model that is grounded in constructivist theory, particularly in the context of multiplication learning at the elementary school level.

Based on this gap, this study proposes the use of a Concrete Learning Model as a structured instructional approach that emphasizes hands-on activities, the use of real objects, and active student engagement. This model is grounded in constructivist learning theory, which posits that knowledge is actively constructed by learners through experience. In this context, students are encouraged to explore, manipulate, and discover mathematical concepts independently, making learning more meaningful and long-lasting (Pardjono, 2002; Prakash Chand, 2024; Sobita Devi & Professor, 2019.)

Therefore, the novelty of this study lies in the integration of concrete learning into a structured instructional model that is systematically implemented through Classroom Action Research cycles. This study not only focuses on the use of concrete objects but also emphasizes the learning process, student engagement, and conceptual understanding development.

Based on the problems and research gap identified, the objective of this study is to improve third-grade students' understanding of multiplication concepts through the implementation of a Concrete Learning Model. The research question addressed in this study is: How can the application of a Concrete Learning Model improve students' understanding of multiplication concepts in elementary school?

This study is expected to contribute both theoretically and practically by providing an alternative instructional model that is aligned with students' cognitive

Literacy of the Archipelago. vol.6 no.3, Juli– Oktober 2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

development and by offering insights for teachers in designing more effective and meaningful mathematics learning (Witanto, 2012; Wulandari Danoebroto, 2015)

2. Method

This research uses a qualitative approach with the type of Classroom Action Research (PTK). PTK was chosen because it aims to improve the learning process directly through actions that are carried out gradually in several cycles. Each cycle in PTK consists of four main stages, namely planning, implementation of actions, observation, and reflection (Sabiela et al., 2024). This model allows for continuous improvement in learning based on the results of reflection from previous cycles. This research was carried out in two cycles, where each cycle consisted of two learning meetings.

The subjects of this study are grade III elementary school students totaling 21 students with diverse abilities. The research was carried out in two cycles, with the aim of improving understanding of mathematical concepts, especially in multiplication materials through the use of concrete media in learning.

The data collection techniques used in this study include observation, tests, and documentation. Observations are carried out to find out student activities during learning, while tests are used to measure the improvement of student learning outcomes. Documentation is used to complete the research data in the form of photos of student activities and work results. This data collection technique is commonly used in classroom action research to obtain comprehensive data (Muhemin, 2024).

The research instruments used include student activity observation sheets and learning outcome test questions. Before use, the instrument is validated by experts (expert judgment), namely classroom teachers and supervisors, to ensure the suitability of the content and clarity of the measured indicators. In addition, a limited trial was carried out to determine the level of clarity of the questions and correct the shortcomings of the instrument, so that the instruments used were declared valid and suitable for use in the research.

Data analysis was carried out using qualitative descriptive techniques, namely through the stages of data reduction, data presentation, and conclusion drawn. In addition, test result data is analyzed in a simple quantitative manner to determine the improvement of student learning outcomes in each cycle. The increase in learning

outcomes is shown through the percentage of student learning completeness from cycle I to cycle II (Rima Pramesti et al., 2024.).

The formula used to calculate learning completeness is as follows:

1. Individual completeness = (Score obtained / Maximum score) × 100%
2. Classical completeness = (Number of students completed / Number of all students) × 100%

Success indicators in this study are determined based on the improvement of student learning outcomes and the increase in student activity during the learning process. This research is declared successful if at least 75% of students achieve scores above the Minimum Completeness Criteria (KKM) set, and there is an increase in student activity in each learning cycle. The use of concrete media in mathematics learning has been proven to be effective in improving students' understanding of concepts because it helps to relate abstract concepts to real experiences, so that learning becomes more meaningful (Kurnia Sari et al., 2024).

3. Result and Discussion

Based on the results of the research that has been carried out, there has been a gradual increase in student learning outcomes starting from the pretest stage, cycle I, to cycle II. In the pretest stage, out of 21 students, 11 students (52%) have reached learning completion, while 10 students (48%) have not reached completion. The average grade of the class at this stage is 78, which shows that the students' initial understanding of multiplication material is still moderate and has not met the Minimum Completeness Criteria (KKM) which is 80.

In the first cycle, after learning was carried out using concrete media in the form of multiplication domino cards, student learning outcomes began to improve. Based on the data, of the 21 students, 10 students (48%) have achieved completeness, while 11 students (52%) have not completed it. The average grade of the class in the first cycle was 77.6. Although there was an improvement compared to the pretest, this result did not meet the classical completeness (≥85%), so improvements were needed in cycle II. These results show that in the

Literacy of the Archipelago. vol.6 no.3, Juli– Oktober 2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

early stages of implementing concrete media, students are still in the process of adapting to hands-on-activity learning.

The following table presents the overall improvement in student learning outcomes:

Table 1 Improving Student Learning Outcomes

Stage	Average	Complete Amount	Persentage	Description
Pretest	78	11 siswa	52%	Incomplete
Siklus I	77,6	10 siswa	48%	Incomplete
Siklus II	95,7	20 siswa	95%	Complete

The results in cycle II showed a significant improvement. Of the 21 students, as many as 20 students (95%) have achieved completeness of learning, while 1 student (5%) is still incomplete. The average grade of the class increased to 95.7. Thus, classical learning completeness has been achieved because it has met the criteria of ≥85%. This data has been consistent between tables, results, and discussions, thus increasing the accuracy and reliability of the research.

This increase in learning outcomes is inseparable from the use of learning media in the form of multiplication domino cards. In theoretical studies, mathematics learning in elementary school emphasizes the use of concrete media because students are at the concrete operational stage, so it is easier to understand concepts through real objects and direct activities. The use of concrete media has been shown to be effective in improving students' cognitive learning outcomes because it helps to connect abstract concepts with real experiences (Ismiyana et al., 2024)

In addition, the use of domino cards as a learning medium is also in line with the constructivist approach which emphasizes that students build knowledge through learning experiences. Learning with concrete media allows students to be active in discovering concepts, so that understanding becomes more meaningful (Adhiyah, 2023).

The use of multiplication domino card media also increases student involvement in learning. Students become more active, motivated, and enthusiastic because learning is packaged in the form of educational games. This is in accordance with the game-based learning theory which states that the use of game elements in learning can significantly increase students' motivation and understanding of concepts. Link(Paulina et al., 2023.)

When compared to previous research, the results of this study are consistent with the findings that the use of manipulative or concrete media in mathematics learning can significantly improve students' learning skills and outcomes. Link (Ristanti, 2016)

However, there is still 1 student who has not reached the completion of learning in cycle II. This is due to factors of differences in individual abilities, lack of concentration, and weak understanding of the basic concept of multiplication. Therefore, special guidance and follow-up assistance are needed for these students.

Thus, it can be concluded that the use of multiplication domino card media has proven to be effective in improving the learning outcomes of grade III students in multiplication materials. This is shown by an increase in learning completeness from 52% in the pretest stage to 95% in cycle II, as well as an increase in the average grade point average from 78 to 95.7. These results also strengthen the theoretical study that learning based on concrete media and direct activities is very effective in improving the understanding of mathematical concepts in elementary school students.

4. Conclusion

Based on the results of the class action research that has been carried out, it can be concluded that the use of a learning model based on concrete objects through the media of multiplication domino cards is effective in improving student learning outcomes in multiplication materials. This is shown by an increase in student learning completeness from 52% in the pretest stage to 95% in cycle II, as

Literacy of the Archipelago. vol.6 no.3, Juli– Oktober 2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

well as an increase in the average grade of the class from 78 to 95.7. The use of concrete media helps students understand the concept of multiplication more meaningfully, not only as repeated addition but also as grouping of equal amounts. In addition, learning with domino card media increases student involvement, participation, and confidence in the learning process, so that students become more active and able to solve problems better.

Practically, the results of this study provide implications for elementary school teachers to utilize concrete learning media, especially multiplication domino cards, as an alternative to effective mathematics learning strategies in improving students' understanding of concepts. However, this study has limitations, namely a limited number of samples and only focuses on one learning material. Therefore, further research is recommended to involve a larger sample count, examine other mathematical materials, and examine the effectiveness of concrete learning media in the long term.

References

Ardiningrum, D. I., & Andriani, A. (2025). Analisis hambatan belajar peserta didik pada proses pembelajaran di kelas IV SD Negeri 2 Sokaraja Banjarnegara. Pendas: Jurnal Ilmiah Pendidikan Dasar, 10(2), 322. Adhiyah, M. (2023). Pembelajaran Konstruktivisme Berbantuan Media Benda Konkret untuk Meningkatkan Hasil Belajar Siswa Pada Materi Bangun Ruang di Sekolah Dasar. *Jurnal Basicedu*, *7*(4), 2081–2090. https://doi.org/10.31004/basicedu.v7i4.4988

Ani Arlinah, E., korespondensi, A., & Menengah Pertama Negeri, S. (2021). *PENERAPAN MODEL PEMBELAJARAN KOOPERATIF TIPE THINK PAIR SHARE (TPS) UNTUK MENINGKATKAN AKTIVITAS DAN KETUNTASAN BELAJAR SISWA Info Artikel*. http://journal.unnes.ac.id/sju/index.php/harmony

Irma Ardiningrum, D., Andriani, A., & Muhammadiyah Purwokerto, U. (n.d.-a). *PROSES PEMBELAJARAN DI KELAS IV SD NEGERI 2 SOKARAJA BANJARNEGARA PGSD FKIP*.

Irma Ardiningrum, D., Andriani, A., & Muhammadiyah Purwokerto, U. (n.d.-b). *PROSES PEMBELAJARAN DI KELAS IV SD NEGERI 2 SOKARAJA BANJARNEGARA PGSD FKIP*.

Ismiyana, N., Pramasdyahsari, A. S., Hartati, H., & Saputra, H. J. (2024). EFEKTIVITAS MEDIA KONKRET JELLYFISH MATEMATIKA TERHADAP HASIL BELAJAR KOGNITIF PESERTA DIDIK KELAS 1 MATERI PENGURANGAN SD NEGERI TAWANGMAS 01 SEMARANG. *Jurnal Penelitian Pembelajaran Matematika Sekolah (JP2MS)*, *8*(2), 242–249. https://doi.org/10.33369/jp2ms.8.2.242-249

Khotimah, K., Fitria, N., Alif Cahayani, I., & Islam Negeri Sultan Maulana Hasanuddin Banten, U. (n.d.). Analisis Sistematika Metode Jarimatika Dalam Meningkatkan Keterampilan Perkalian Matematika Siswa di SD/MI. *SANGKALEMO: THE ELEMENTARY SCHOOL TEACHER EDUCATION JOURNAL 2024*, *3*(1), 27–37. https://doi.org/10.37304

Kurnia Sari, T., Nugraheni, N., & Siana Dayu Murti, T. (2024). MENINGKATKAN HASIL BELAJAR MATEMATIKA MATERI PECAHAN MELALUI PUZZLE PECAHAN SISWA KELAS II SDN SAMPANGAN 02. *Jurnal Penelitian Pendidikan Indonesia*, *2*, 30–32. www.m-edukasi.web.id/2012/04/kompetensi-

Lintang Kusuma Wardani, Oktaviana Dwi Rahmadhani, & Diana Ermawati. (2024). Peningkatan Hasil Belajar Matematika Pada Materi Perkalian Dengan Penerapan Metode Jarimatika Pada Kelas II SD. *Jurnal Bima : Pusat Publikasi Ilmu Pendidikan Bahasa Dan Sastra*, *2*(3), 92–102. https://doi.org/10.61132/bima.v2i3.1020

Muhemin, U. (n.d.). *Upaya Meningkatkan Hasil belajar Siswa Pada Materi Bangun Datar Melalui Model Pembelajaran Kooperatif Tipe Think Pair Share (TPS) di Kelas IV SD Negeri Karyabakti IV*.

Paulina, C., Rokmanah, S., Syachruroji, A., Studi, P., Guru, P., Dasar, S., Sultan, U., & Tirtayasa, A. (n.d.). *Efektivitas Penggunaan Model Game Based Learning dalam Pembelajaran Matematika di SD*.

Prakash Chand, S. (2023). Constructivism in Education: Exploring the Contributions of Piaget, Vygotsky, and Bruner. *International Journal of Science and Research (IJSR)*, *12*(7), 274–278. https://doi.org/10.21275/sr23630021800

Puspitarani, R., & Rokhmaniyah, N. (n.d.). *Kalam Cendekia: Jurnal Ilmiah Kependidikan Analisis Faktor Kesulitan Menentukan Hasil Perkalian Bersusun Dalam Mata Pelajaran Matematika Pada Siswa Kelas IV SDN 5 Kutosari Tahun Ajaran 2021/2022*.

Rima Pramesti, S., Unun Pratiwi, V., Sri Antana, A., Guru Sekolah Dasar, P., Veteran Bangun Nusantara, U., & Negeri Pengkol, S. (n.d.). *Penggunaan*

Literacy of the Archipelago. vol.6 no.3, Juli– Oktober 2026
ISSN 2746-8208 (Online) and ISSN 2746-3575 (Print)

Media Permainan Papan Pecahan Membantu Meningkatkan Hasil Belajar Literasi Numerasi Siswa Kelas II SD Negeri Pengkol 01 Kota Sukoharjo.

Ristanti, Y. (2016). Peningkatan motivasi dan keterampilan hitung pecahan desimal melalui media manipulatif pada pembelajaran tematik-integratif SD. *Jurnal Riset Pendidikan Matematika*, *3*(1), 122–136. https://doi.org/10.21831/jrpm.v3i1.9686

Ristanti, Y. (2016). Peningkatan motivasi dan keterampilan hitung pecahan desimal melalui media manipulatif pada pembelajaran tematik-integratif SD. *Jurnal Riset Pendidikan Matematika*, *3*(1), 122–136.

R.S.W. Putri, E. Handoyo, Suyahmo, & A. Purnomo. (2024). PENERAPAN PROGRAM ADIWIYATA DALAM MEMBENTUK KARAKTER PEDULI LINGKUNGAN PADA SISWA. *Jurnal Pendidikan IPS Indonesia*, *8*(1), 31–40. https://doi.org/10.23887/pips.v8i1.3636

Sabiela, R. N., Permadani, R. A., & Ermawati, D. (2024). PENERAPAN MODEL PEMBELAJARAN CTL BERBANTUAN LKS UNTUK MENINGKATKAN PEMAHAMAN KONSEP MATEMATIKA SISWA KELAS 3 SD. *Jurnal Penelitian Pembelajaran Matematika Sekolah (JP2MS)*, *8*(2), 191–198. https://doi.org/10.33369/jp2ms.8.2.191-198

Sobita Devi, K., & Professor, A. (n.d.). *Constructivist Approach to Learning based on the Concepts of Jean Piaget and Lev Vygotsky An Analytical Overview*.

Witanto, Y. (2012). STRATEGI PEMBELAJARAN AKTIF MODELLING THE WAY BERBASIS TEORI BRUNER PADA PEMBELAJARAN MATEMATIKA. In *JPE* (Vol. 1, Number 1). http://journal.unnes.ac.id/sju/index.php/jpe

Wulandari Danoebroto PPPPTK Matematika, S. (2015). TEORI BELAJAR KONSTRUKTIVIS PIAGET DAN VYGOTSKY. In *Indonesian Digital Journal of Mathematics and Education* (Vol. 2). http://idealmathedu.p4tkmatematika.orgISSN2407-7925