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Implementation of The Window Shopping Model to Improve Fifth-Grade Students' Mathematics Learning Outcomes on Solid Geometry

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Abstract
This classroom action research aimed to improve fifth-grade students' learning outcomes in mathematics, particularly on solid geometry, through the implementation of the Window Shopping cooperative learning model. The study was conducted in Class VB of SDN 02 Tanjung Batu during the 2024/2025 academic year with 20 students as participants. The research followed the Kemmis and McTaggart action research cycle, consisting of planning, action, observation, and reflection, and was implemented in two cycles. Data were collected using student activity observation sheets and learning outcome tests consisting of ten short-answer items administered during the pre-action stage and at the end of each cycle. The data were analyzed descriptively by calculating mean scores, mastery percentages, and observation percentages. The results showed that the mean score increased from 66.00 in the pre-action stage to 78.00 in Cycle I and 80.50 in Cycle II. The percentage of students achieving the minimum mastery criterion increased from 50% to 75% and then to 90%. Student activity also improved from 61.1% in Cycle I, categorized as sufficient, to 83.3% in Cycle II, categorized as good. These findings indicate that the Window Shopping model can improve students' learning outcomes and participation in learning solid geometry through collaborative discussion, peer tutoring, and gallery-based learning activities.

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Introduction

Education is a conscious and planned effort to create a learning environment that enables students to develop their potential optimally. Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System emphasizes that education functions to develop abilities, shape character, and build a dignified national civilization. In the context of twenty-first-century learning, the learning process in elementary schools needs to be designed actively, collaboratively, and meaningfully so that students do not merely receive information but are also able to construct understanding through learning experiences that correspond to their developmental characteristics (Republik Indonesia, 2003; Suyuti et al., 2023).

Mathematics is one of the important subjects in elementary school because it trains students to think logically, systematically, critically, and creatively and to solve problems. Effective mathematics learning should provide opportunities for students to connect concepts with real-life experiences, use visual representations, and communicate mathematical ideas orally and in writing (National Council of Teachers of Mathematics, 2000; Van de Walle et al., 2019). One of the mathematics topics taught in Grade V is solid geometry. This topic requires students to understand the characteristics of three-dimensional shapes, distinguish forms, identify faces, edges, and vertices, and understand nets of solid figures. At the concrete operational stage, elementary school students more easily understand mathematical concepts when learning involves concrete objects, direct activities, discussion, and meaningful learning experiences (Bruner, 1966; Piaget, 1952; Nurhadi, 2020).

Solid geometry has visual and spatial characteristics; therefore, it cannot be sufficiently understood through verbal explanation or formula memorization alone. Students need opportunities to observe models, manipulate objects, compare shapes, draw nets, and explain the relationships among the elements of solid figures. If these activities are not facilitated, students may experience difficulties in distinguishing cubes and rectangular prisms, determining the number of faces, edges, and vertices, and understanding the forms of solid-figure nets. Such problems are consistent with findings that mathematics learning in elementary schools still faces obstacles related to conceptual understanding, the use of concrete media, and students' active involvement (Faozan & Kusno, 2024; Wiryana & Alim, 2023).

Based on the preliminary observation in Class VB of SDN 02 Tanjung Batu, some students still had difficulty understanding the topic of solid geometry. These difficulties were evident in their ability to distinguish cubes from rectangular prisms, calculate the elements of solid figures, and construct and explain nets of solid figures. The pre-action results showed that, of the 20 students, only 10 students, or 50%, achieved the Minimum Mastery Criterion (MMC) of 65, with a class mean score of 66.00. This condition indicated the need to improve the learning process so that students could become more active, obtain concrete learning experiences, and gradually build conceptual understanding.

One factor assumed to influence the low learning outcomes was the learning process that was still dominated by the lecture method. Such learning tends to make students passive, gives them limited opportunities for discussion, and does not optimally help them connect the concept of solid geometry with concrete activities. Cooperative learning can be an alternative because it provides space for students to help one another, exchange information, build group responsibility, and increase learning engagement through social interaction (Johnson & Johnson, 1999; Slavin, 2014). Therefore, a learning model that encourages active participation, cooperation, peer tutoring, and enjoyable learning experiences is needed.

The Window Shopping cooperative learning model is one relevant alternative for teaching solid geometry. This model adapts the concept of gallery walks, in which students work in groups to complete a task, display their work, and then visit other groups to obtain information and provide responses. Through this activity, students learn not only from the teacher but also from their peers through discussion, short presentations, question-and-answer sessions, and idea exchange. Window Shopping activities can also help students develop thinking skills, communication skills, responsibility, and confidence in explaining group work (Rasidi & Nuruddin, 2019; Prasetyo, 2021).

Several previous studies have shown that the Window Shopping model can improve students' learning outcomes, learning interest, and learning activities in various subject matters. Apriana (2020) reported that the Window Shopping model helped improve science learning outcomes through gallery-based activities. Mumpuni et al. (2020) showed that the implementation of Window Shopping in vector material improved students' mathematics learning outcomes and interest. Mustopa (2020) also found that gallery visits improved students' learning achievement through a more active learning process. These findings

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indicate that Window Shopping has potential for use in elementary school mathematics learning, particularly for topics requiring visualization and concrete products.

The Window Shopping model is appropriate for geometry learning because it allows students to create, observe, compare, and explain learning products, such as models or nets of solid figures. These activities can help students understand concepts more concretely while also increasing learning activeness. In addition, the support of media, student worksheets, and simple formative assessment can strengthen active learning when used according to classroom needs (Suyuti et al., 2023). Based on this background, this study aimed to improve students' mathematics learning outcomes on solid geometry in Class VB of SDN 02 Tanjung Batu through the implementation of the Window Shopping cooperative learning model.

Research Method

This study used Classroom Action Research (CAR) with the Kemmis and McTaggart model. This model was selected because it is appropriate for improving the learning process through an action cycle consisting of planning, action implementation, observation, and reflection. The research was conducted in two cycles. Each cycle was implemented in one meeting and ended with observation and reflection to determine improvements for the next cycle.

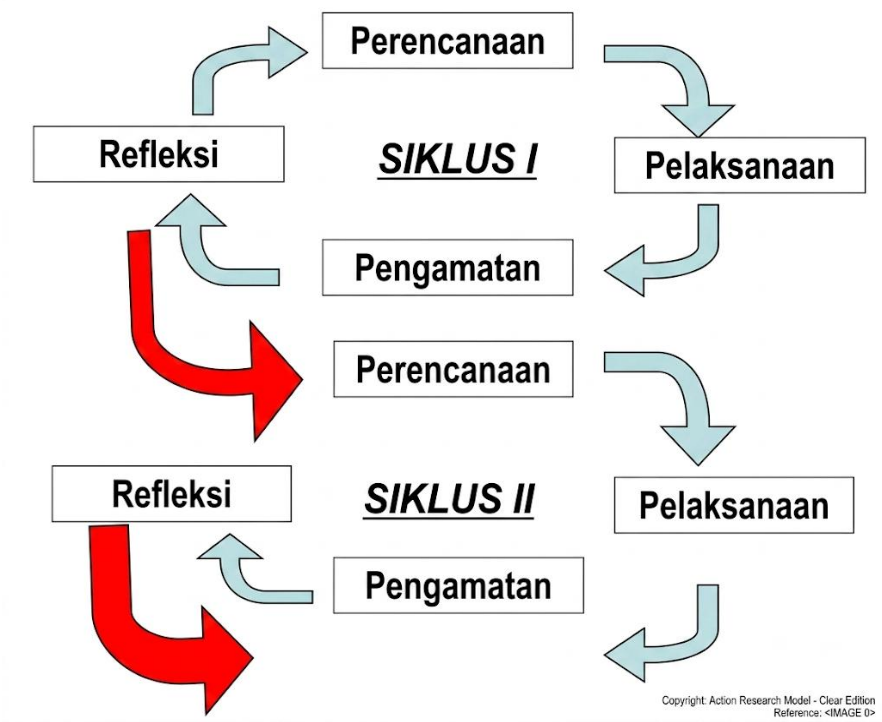

Figure 1. Classroom Action Research Cycle Based on the Kemmis and McTaggart Model

The study was conducted in Class VB of SDN 02 Tanjung Batu in the even semester of the 2024/2025 academic year. The research subjects consisted of 20 students, including 7 male students and 13 female students. The criteria for action success were determined based on two indicators: (1) classical mastery of learning outcomes reached at least 85% of students obtaining scores of ≥ 65 according to the MMC, and (2) students' learning activity reached the good category, with a minimum percentage of 80%.

The action procedure in Cycle I began with the preparation of the teaching module, student worksheets, solid-geometry learning media, and observation sheets. During the implementation stage, the teacher divided students into groups, provided student worksheets, guided students in creating nets of solid figures, displayed group work, and organized gallery-visit activities. One student served as the booth keeper or peer tutor to explain the group's work, while the other members visited other groups to obtain information. At the end of the lesson, students completed a formative test.

The reflection results of Cycle I showed that some students were still unfocused, the classroom was not yet fully conducive, and several students were not actively expressing their opinions in groups. Therefore, improvements in Cycle II included forming more heterogeneous groups, agreeing on learning rules, providing ice-breaking activities when the class became less conducive, strengthening the role of peer tutors, and using simple ICT-based formative assessment. The test in Cycle II was designed to be equivalent to the Cycle I test in terms of the number of items, content coverage, and level of difficulty so that the results could be fairly compared.

The research instruments consisted of student activity observation sheets and learning outcome tests. The observation sheet included nine indicators covering opening activities, core activities, and closing activities. Each indicator was scored from 1 to 4, so the maximum score was 36. The activity percentage was calculated using the formula: percentage = (obtained score / maximum score) × 100%. The learning outcome test consisted of ten short-answer items about the characteristics of solid figures, the elements of cubes and rectangular prisms, and nets of solid figures. Each correct answer was given a score of 10, while an incorrect answer was given a score of 0, so the maximum score was 100.

The data were analyzed using descriptive quantitative analysis. The analysis was conducted by calculating mean scores, the number of students who achieved mastery, the percentage of classical mastery, observation scores, and the percentage of learning activity. Observation and reflection data were used to explain changes in students' learning activities and to provide the basis for action improvement from Cycle I to Cycle II.

Research Findings and Discussion

Pre-Action

The pre-action activity was conducted through observation of the learning process and administration of an initial test. The observation results showed that learning was still teacher-centered, the learning media used were not sufficiently concrete, and students were not yet able to distinguish the forms of solid figures specifically. The initial test showed that the students' mean score was 66.00. Of the 20 students, 10 students (50%) achieved the MMC, while 10 students (50%) did not. These data served as the basis for implementing learning actions through the Window Shopping model.

Cycle I

Cycle I was conducted on Thursday, March 13, 2025, for two lesson hours, from 08.00 to 09.30 WIB. The teacher implemented the Window Shopping model by dividing students into groups, providing student worksheets, guiding the creation of solid-figure nets, displaying group work, and organizing visits between groups. Each group had a peer tutor who was responsible for explaining the group's work to visitors.

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The observation results of students' activity in Cycle I obtained a score of 22 out of a maximum score of 36. The percentage of students' activity was 22/36 × 100% = 61.1%, which was categorized as sufficient. Based on the formative test results, the students' mean score increased to 78.00. The number of students who achieved the MMC was 15, or 75%, while 5 students, or 25%, had not yet achieved mastery. These results indicated an improvement compared with the pre-action stage, but they had not yet met the success indicator of at least 85% classical mastery.

The reflection in Cycle I showed that some students were still not orderly during the gallery-visit activity, some were not focused on the teacher's instructions, and several group members were still passive in expressing opinions. Based on this reflection, the improvements in Cycle II focused on heterogeneous grouping, strengthening classroom rules, providing ice-breaking activities, and reinforcing the role of peer tutors.

Cycle II

Cycle II was conducted on Thursday, March 20, 2025, for two lesson hours, from 08.00 to 09.30 WIB. The learning steps still used the Window Shopping model, but several improvements were made based on the reflection results from Cycle I. The teacher formed heterogeneous groups, agreed on activity rules with students, provided reinforcement before the gallery-visit activity, and used simple ICT-based formative assessment to increase students' engagement.

The observation results in Cycle II showed an increase in learning activity. The students' observation score increased to 30 out of a maximum score of 36. The percentage of students' activity was 30/36 × 100% = 83.3%, which was categorized as good and had met the success indicator. Learning outcomes also improved, with a mean score of 80.50. The number of students who achieved the MMC was 18, or 90%, while 2 students, or 10%, had not yet achieved the MMC. Thus, classical mastery in Cycle II exceeded the predetermined success indicator.

Table 1. Recapitulation of Students' Learning Activity Observation

Cycle	Score Obtained	Maximum Score	Percentage	Category
Cycle I	22	36	61.1%	Sufficient
Cycle II	30	36	83.3%	Good

Table 2. Recapitulation of Students' Learning Outcomes

Stage	Mean Score	Number Achieving Mastery	Mastery	Description
Pre-action	66.00	10 of 20	50%	Not yet achieved
Cycle I	78.00	15 of 20	75%	Not yet achieved
Cycle II	80.50	18 of 20	90%	Achieved

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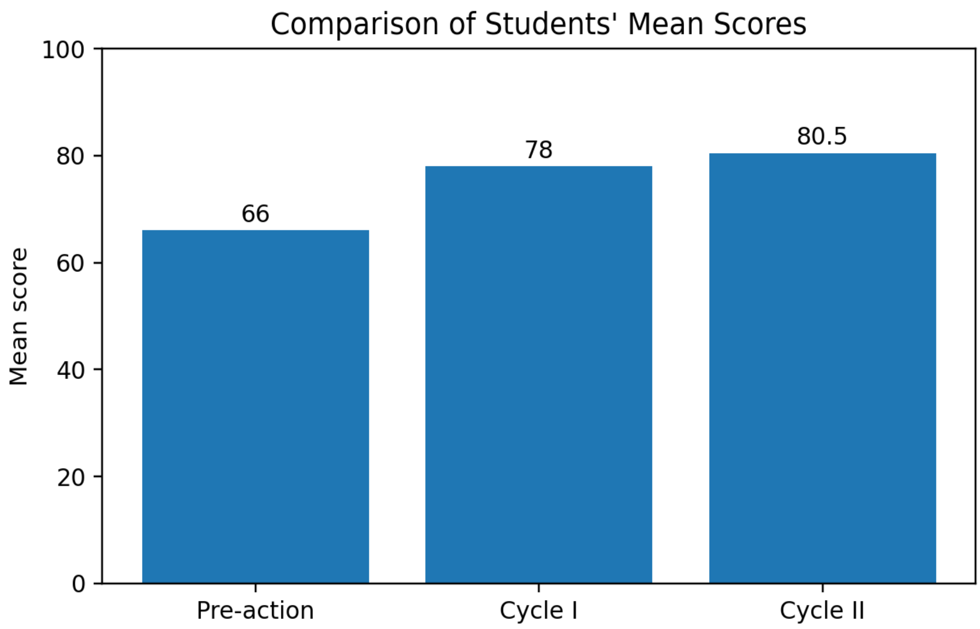

Figure 2. Comparison of Students' Mean Scores

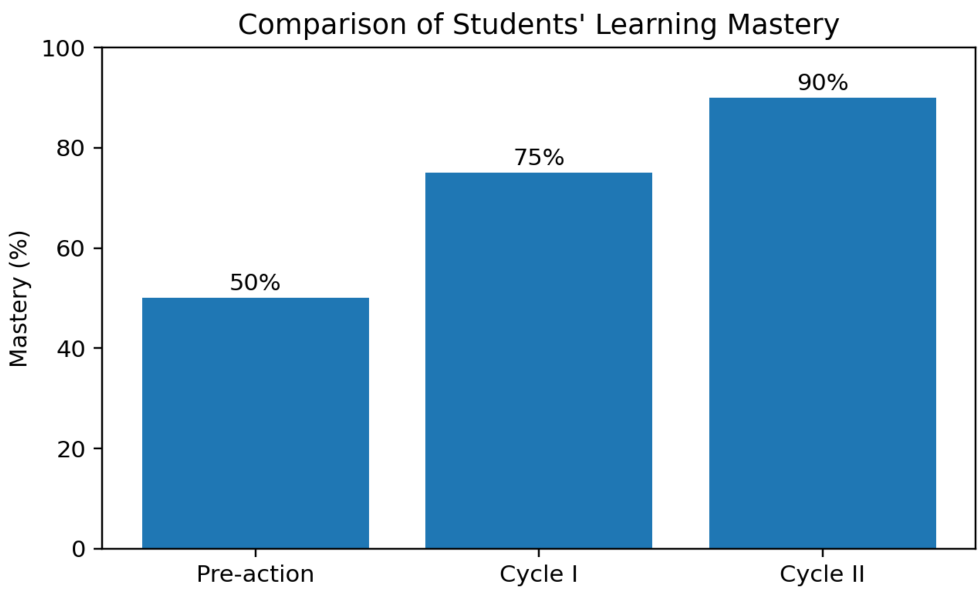

Figure 3. *Comparison of Students' Learning Mastery*

Discussion

The implementation of the Window Shopping model showed an improvement in mathematics learning outcomes on solid geometry. The students' mean score increased from 66.00 in the pre-action stage to 78.00 in Cycle I and 80.50 in Cycle II. This improvement indicates that learning activities involving group discussion, gallery visits, and peer-tutor explanations can help students understand the concept of solid geometry more concretely.

The increase in learning mastery was also evident, rising from 50% in the pre-action stage to 75% in Cycle I and 90% in Cycle II. In Cycle I, mastery had not yet reached the success indicator because some students were still unfocused and were not familiar with the Window Shopping procedure. After improvements were made in Cycle II through heterogeneous grouping, agreement on classroom rules, ice-breaking activities, and strengthening the role of peer tutors, students became more orderly and active. This condition contributed to students' improved understanding of the characteristics and nets of solid figures.

Students' learning activity also increased from 61.1% in Cycle I to 83.3% in Cycle II. This increase indicates that the Window Shopping model can create a more interactive learning atmosphere. Students had opportunities to discuss, observe the work of other groups, ask questions, and explain the information they obtained to their own groups. These activities encouraged higher learning engagement compared with teacher-centered learning.

These findings are consistent with the view that cooperative learning can increase students' social interaction and involvement in the learning process. Rasidi and Nuruddin (2019) explained that the Window Shopping model provides opportunities for students to exchange information and develop thinking skills through visits between groups. Prasetyo (2021) also stated that the Window Shopping model can help students obtain more active and meaningful learning experiences.

Nevertheless, two students still did not achieve the MMC in Cycle II. This indicates that the implementation of the Window Shopping model still needs to be accompanied by individual assistance, reinforcement of basic concepts, and additional practice for students who require special support. Thus, the Window Shopping model can be used as an alternative learning strategy to improve learning outcomes, but its implementation needs to be adjusted to classroom characteristics and students' needs.

Conclusion

Based on the classroom action research conducted in two cycles, it can be concluded that the implementation of the Window Shopping cooperative learning model can improve mathematics learning outcomes on solid geometry among students of Class VB at SDN 02 Tanjung Batu. The improvement was shown by the increase in the mean score from 66.00 in the pre-action stage to 78.00 in Cycle I and 80.50 in Cycle II. Learning mastery also increased from 50% in the pre-action stage to 75% in Cycle I and 90% in Cycle II.

In addition to improving learning outcomes, the Window Shopping model also improved students' learning activity. The percentage of learning activity increased from 61.1% in Cycle I, categorized as sufficient, to 83.3% in Cycle II, categorized as good. This improvement occurred because students were involved in group discussions, gallery visits, peer tutoring, and more interactive learning activities.

Recommendations

Teachers are advised to use the Window Shopping model as an alternative in mathematics learning, particularly for topics that require visualization and concrete activities, such as solid geometry. To ensure optimal implementation, teachers need to prepare clear student worksheets, media or products that can be observed, rules for gallery visits, and a clear division of roles among group members.

Schools are advised to support the implementation of active learning by providing solid-geometry learning media, teaching aids, and simple facilities for gallery-based learning activities. Future researchers may develop this study with more meetings, involve other mathematics topics, or add analyses of students' motivation, mathematical communication skills, and learning retention.

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References

Apriana, B. N. (2020). Model cooperative learning tipe Window Shopping untuk meningkatkan hasil belajar IPS pada siswa kelas IX-B SMP Negeri 1 Wanasaba. *Jurnal Ilmiah WUNY, 2*(2), 1–8. https://doi.org/10.21831/jwuny.v2i2.34690

Arikunto, S. (2021). *Penelitian tindakan kelas: Edisi revisi*. Bumi Aksara.

Bruner, J. S. (1966). *Toward a theory of instruction*. Harvard University Press.

Faozan, D., & Kusno, K. (2024). Eksplorasi geometri bangun ruang wisata religi Mandala Giri di Gunung Srandil. *Jurnal Review Pendidikan Dasar: Jurnal Kajian Pendidikan dan Hasil Penelitian, 10*(1), 52–57. https://doi.org/10.26740/jrpd.v10n1.p52-57

Johnson, D. W., & Johnson, R. T. (1999). *Learning together and alone: Cooperative, competitive, and individualistic learning* (5th ed.). Allyn & Bacon.

Mumpuni, P. W., Inganah, S., & Sugiarti, W. (2020). Penerapan model pembelajaran Window Shopping materi vektor untuk meningkatkan hasil dan minat belajar matematika. *Jurnal Math Educator Nusantara: Wahana Publikasi Karya Tulis Ilmiah di Bidang Pendidikan Matematika, 6*(2), 115–126. https://doi.org/10.29407/jmen.v6i2.12827

Mustopa, M. Z. (2020). Peningkatan prestasi belajar peserta didik melalui pendekatan saintifik model pembelajaran Window Shopping (kunjungan galeri) pada materi sistem pencernaan manusia kelas VIII.8 SMPN I Praya tahun pelajaran 2019–2020. *JISIP (Jurnal Ilmu Sosial dan Pendidikan), 4*(2), 146–154. https://doi.org/10.58258/jisip.v4i2.1075

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. National Council of Teachers of Mathematics.

Nurhadi, N. (2020). Teori kognitivisme serta aplikasinya dalam pembelajaran. *Edisi, 2*(1), 77–97. https://doi.org/10.36088/edisi.v2i1.786

Piaget, J. (1952). *The origins of intelligence in children*. International Universities Press.

Prasetyo, A. D. (2021). Pemanfaatan model belajar Window Shopping dalam upaya peningkatan hasil belajar. *Pedagogika, 12*(2), 184–193. https://doi.org/10.37411/pedagogika.v12i2.782

Rasidi, M. A., & Nuruddin. (2019). Pengaruh model pembelajaran kooperatif tipe Windows Shopping terhadap keterampilan berpikir kritis mahasiswa PGMI UIN Mataram. *Jurnal Elementary: Kajian Teori dan Hasil Penelitian Pendidikan Sekolah Dasar, 2*(2), 31–33. https://doi.org/10.31764/elementary.v2i2.1297

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

Slavin, R. E. (2014). Cooperative learning and academic achievement: Why does groupwork work? *Anales de Psicología, 30*(3), 785–791.

https://doi.org/10.6018/analesps.30.3.201201

Suyuti, S., Wahyuningrum, P. M. E., Jamil, M. A., Nawawi, M. L., Aditia, D., & Rusmayani, N. G. A. L. (2023). Analisis efektivitas penggunaan teknologi dalam pendidikan terhadap peningkatan hasil belajar. *Journal on Education, 6*(1), 1–11. https://doi.org/10.31004/joe.v6i1.2908

Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2019). *Elementary and middle school mathematics: Teaching developmentally* (10th ed.). Pearson.

Wiryana, R., & Alim, J. A. (2023). Permasalahan pembelajaran matematika di sekolah dasar. *Jurnal Kiprah Pendidikan, 2*(3), 271–277. https://doi.org/10.33578/kpd.v2i3.187