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Enhancing Mathematical Learning Achievements for First-Grade Students at SDN Kebagusan 04 Pagi, South Jakarta Through Cooperative Learning Model Implementation

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A B S T R A C T

Mathematics is an abstract discipline that involves concepts and ideas derived from logical reasoning and practical applications in the real world. The objective of this study is to assess the academic achievements in mathematics, specifically in the area of basic flat shapes, among first-grade students at SDN Kebagusan 04 Pagi, located in South Jakarta. The study will utilize the cooperative learning method known as group investigation. The study will utilize the cooperative learning method known as group investigation, which is a specific type of cooperative learning model. This study employs a cyclical framework based on the Kemmis & McTaggart model, which comprises four stages: planning, implementation, observation, and reflection. The research findings indicated a rise in students' proficiency in mathematics. The mean scores of the students are as follows: pre-cycle 63.00, cycle I 66.00, and cycle II 82.00. Additionally, there was a rise in the proportion of students who attained the minimum level of completeness. Specifically, in the pre-cycle, 33.33% of students achieved this level, while in cycle I, the percentage increased to 40.00%, and in cycle II, it further rose to 80.00%. In conclusion, the implementation of the group investigation cooperative learning approach has the potential to enhance students' academic achievements and comprehension of mathematical concepts.

1. Introduction

Traditionally, mathematics is considered a crucial discipline that fosters essential abilities by requiring the use of language and critical reasoning. Engaging in mathematics education during the elementary school years might cultivate children's inclination toward intellectual pursuits. However, in actuality, the field of mathematics education still fails to incorporate suitable instructional methods. A lack of methodological diversity in mathematics education can lead to poor student learning outcomes.[1-3]

Cooperative learning is an instructional approach in which students collaborate in small groups under the leadership of a teacher to collectively attain learning objectives.[4,5] The cooperative learning model is a pedagogical approach where students engage in collaborative learning and work together in small groups. These groups typically consist of four to six individuals and are intentionally diverse in terms of their composition. Cooperative learning is a student-centered approach that utilizes group dynamics to enable students to collaborate and, consequently, obtain collective advantages and accomplishments for the group. High-achieving students collaborate with low-achieving pupils in the group investigation cooperative learning model to collectively investigate and resolve a teacher-provided issue.[6] The objective of this study is to assess academic achievements in

mathematics, specifically in the area of simple flat shapes, by implementing a cooperative learning approach known as group investigation in first-grade students at SDN Kebagusan 04 Pagi, located in South Jakarta.

2. Methods

This study employs the classroom action technique as an observational research approach. This study employs a cooperative learning framework utilizing a group investigation approach. Classroom action technique refers to the systematic investigation of instructors' reflective activities throughout multiple periods or cycles, with the purpose of addressing and rectifying any shortcomings in the teaching and learning process inside the classroom.[7] This study used a cyclical framework based on the Kemmis & McTaggart model, which comprises four stages: planning, implementation, observation, and reflection.[7,8] This research is conducted at SDN 04 Kebagusan Pagi, which is situated in South Jakarta, Indonesia. There were a total of 30 students involved in this investigation. The data collection process involved the utilization of interviews, observation, and documenting techniques. The researchers convey the research findings through a narrative format.

3. Results and Discussion

The gathered study data consists of observational data, which involves monitoring the activities of both teachers and students during the learning process. Additionally, it includes formative exam data for students for each cycle. Upon preliminary observations (before the start of the cycle), the classroom environment was highly unfavorable and characterized by excessive noise. The youngsters have displayed a lack of focus and attentiveness towards the teacher's explanation. The vast majority of students lack comprehension of the instructional content. During the pre-cycle evaluation, certain pupils obtained mathematics scores that fell below the minimum completion criteria (KKM) of 65. 10 students, accounting for 33.33% of the total, obtained incomplete results. According to the standards of mastery learning, students can progress to the next subject once 80% of the class population achieves the minimum competency level (KKM). During the initial phase of the study, 40% of students successfully met the minimum criteria for completeness, prompting the continuation of the research into the subsequent cycle. During learning cycle 2, students augment their acquisition of mathematical knowledge by utilizing spatial representations connected to real-life situations. According to the observations, there has been a rise in students' mathematical learning outcomes. The mean scores of the students are as follows: pre-cycle 63.00, cycle I 66.00, and cycle II 82.00. Additionally, there was a rise in the proportion of students who attained the minimum level of completeness. Specifically, in the pre-cycle, 33.33% of students achieved this level, while in cycle I, the percentage increased to 40.00%, and in cycle II, it further rose to 80.00%.

Every student possesses a unique disposition and possesses cognitive capabilities, sometimes referred to as intelligence. Students who fail to attain appropriate academic performance commensurate with their intelligence quotient (IQ) are classified as having learning problems or difficulties.[9,10] The individual engaging with them can deem these impediments as unacceptable, or they can arise spontaneously. Common challenges faced by students in mathematics often involve struggles with idea application, acquiring necessary principles, and problem-solving.[11,12]

Mathematics is a very abstract discipline that deals with concepts and thoughts based on logical reasoning and real-world applications. Mathematicians subsequently apply the deductively generated arguments to solve a wide range of problems, including those encountered in practical situations. Mathematics is a crucial component of science. Understanding mathematics equips children with logical, analytical, organized, critical, and creative thinking skills, enabling them to actively engage. The study of mathematics encompasses more than just problem-solving; it also develops students' cognitive capacities, logical reasoning skills, problem-solving aptitude, effective communication, ability to apply mathematical concepts to real-world scenarios, and proficiency in utilizing technology.[13,14] Hence, it is

imperative for teachers to incorporate innovation into their mathematics teaching methods. Engaging with enjoyable and practical concepts can enhance students' comprehension of the abstract essence of mathematics. Incorporating objects into everyday activities transforms students' perception of mathematics from an intimidating subject to one that is comprehensible and relevant for their future endeavors.[15,16]

4. Conclusion

The use of the group investigation cooperative learning approach has the potential to enhance students' academic performance and comprehension of mathematical concepts.

5. References

1. Teoh SH, Mohamed SR, Mohd AH, Rasid NSM, Yusof MMM. Creating engagement opportunity for math learning. Int J Tech. 2022; 13(5): 1013-22.
2. Al-Mawee W, Kwayu KM, Gharaibeh T. Student's perspective on distance learning during COVID-19 pandemic: a case study of Western Michigan University, United States. Int J Educ Res Open. 2021; 2: 100080.
3. Chen J, Jiang H, Justice LM, Lin TJ, Purtell KM. Influences of teacher–child relationships and classroom social management on child-perceived peer social experiences during early school years. Front Psychol. 2020; 11: 586991.
4. Cicekci MA, Sadik F. Teachers' and students' opinions about students' attention problems during the lesson. J Educ Learn. 2019; 8(6): 15.
5. Lestari IAP. Cooperative learning model in English learning. Int Linguistic TESOL J. 2022; 1(1): 14-7.
6. Rosfiani O, Hermawan CM, Sari RK, Hastuti S. Improving student mathematics achievements of elementary school in 1st grade through demonstration models. IJSTR. 2020; 9(3): 10-2.
7. Bangun BK. Improving student's speaking skill by using show and tell method: a classroom action research. Int J Language Teaching Educ. 2018; 2(1): 41-8.
8. Hermawan, CM, Rosfiani O, Suheti, Susanti SF. STAD type cooperative learning model: an action in learning mathematics. IJSTR. 2020; 9(4): 120-3.
9. Kurnia RA, Wahyuni BD, Handayani N, Sari YN. Analysis of difficulties of student learning mathematics in online learning in the pandemic time COVID-19. Daya Matematis. 2021; 9(1): 59-65.
10. Mali D, Lim H. How do students perceive face-to-face/blended learning as a result of the COVID-19 pandemic? Int J Management Educ. 2021; 19(3): 100552
11. Olanrewaju MK, Suleiman Y. Effects of collaborative learning technique and mathematics anxiety on mathematics learning achievement among secondary school students in Gombe State, Nigeria. AJUE. 2019; 15(1): 44-58.
12. Owens K. Changing the teaching of mathematics for improved indigenous education in a rural Australian City. J Mathematics Teacher Educ. 2015; 18(1): 53-78.
13. Patton S, Hardman F. Parents' and teachers' perceptions of parental involvement. Walden Univ. 2019: 1-147.
14. Purnomo YW, Safitri E, Rohmah N, Rahmawati RD, Abbas N. Parental involvement in online mathematics learning: examining student report and links with engagement. New Educ Rev. 2021; 66: 120-30.
15. Saka AO. Can teacher collaboration improve students' academic achievement in junior secondary mathematics? AJUE. 2021; 17(1): 33-46.
16. Yeh CYC, Cheng HNH, Chen ZH, Liao CCY, Chan TW. Enhancing achievement and interest in mathematics learning through math-island. Res Pract Tech Enhanced Learn. 2019; 14(1): 1–19.