Efforts to Enhance Students' Communication Skills and Academic Achievement in Learning the Volume of Cube and Beam Spaces through the Problem-Based Learning (PBL) Model Assisted by Heyzine FlipbooksI in Five Grade of Danasri 01 Public Elementary School

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Abstract: Due to the low communication and learning achievements of fifth-grade students in Maple Mathematics at fifth grade of Danasri 01 public elementary school, this research was conducted. The purpose of this study is to improve students' communication and learning achievements using the PBL model assisted by *Heyzine FlipbooksI* media. Classroom action research was conducted in two cycles with four meetings. Twenty-one fifth-grade students, comprising 11 females and 10 males, participated in this study. Observation, interviews, and written notes were used as data collection techniques for this research. The action research model developed by Kemmis and McTaggart consists of one cycle with four stages: planning, action, observation, and reflection. The results of this study indicate that communication skills and learning achievements have improved. The communication results in Cycle I were rated as satisfactory, while in Cycle II, there was an improvement in communication with a good rating. The learning achievements of students in Cycle II have met the institution's and curriculum's minimum passing criteria. The research shows that using the PBL model assisted by *Heyzine FlipbooksI* media can enhance students' communication and achievement in understanding and applying the concepts of volume in cubic and rectangular prisms in fifth-grade Mathematics at Danasri 01 Public Elementary School in the academic year 2022/2023.

Keywords: Communication, *Heyzine FlipbooksI*, learning achievement, PBL model

INTRODUCTION

Education can enhance its quality if the selection of its components is appropriate, and one aspect that needs to be considered is the Curriculum. The new Curriculum 2013 represents an improvement and a change in the way education is conducted in Indonesia. The need to facilitate education in line with Curriculum 2013 has made this field a particular focus for educators. In this regard, Curriculum 2013 aims to foster a sense of patriotism, productivity, creativity, innovation, and the ability to contribute to the welfare of the nation, state, and global civilization. Students are more actively engaged in the classroom following the implementation of Curriculum 2013. The

provided illustrations also become more concrete as they not only establish connections between subjects but also relate the learning process to real-life situations (Yusuf in Setiono, Muslim, & Irianto, 2020, p. 26-27).

Learning can be seen as a sequence of cognitive processes that transform the characteristics of environmental stimuli, generate new information as a consequence of experience, and ultimately enhance students' ability to learn and improve their intellectual development (Gagne in Susanto, 2014). In this context, learning can also be understood as a deliberate process by which students acquire new information and behaviors that enable them to engage in learning activities.

According to Jean Piaget, students go through several stages in their intellectual development. The first stage is the sensorimotor stage, which occurs between the ages of zero and two years old. The second stage is the toddler to preschool stage. The third stage is the "concrete operational" period (ages 7-11), and the fourth stage is the formal operational stage (11+ years old). In the formal operational stage, individuals are capable of higher levels of intellectual, rational, and idealistic thinking (Arfiani & Latipah, 2021). Piaget suggests that all children go through the stages of sensorimotor, preoperational, concrete operational, and formal operational development (Moreno in Alahmad, 2020, p. 1585).

Communication is extremely important in every aspect of human existence and is continuously utilized in real-life situations. In Latin, the word "with" is "cum," which means "with," and the word "formula" means "one," thus the term "communication" is a combination of these two words. The Latin word "communio" forms the basis for the English word "communion," which signifies "togetherness," "unity," "alliance," "combination," "association," and "relationship" (Karwati & Priansa, 2014, p. 94). The term "communication" refers to the act of conveying one's thoughts to others (Lanani, 2013, p. 16).

Academic achievement refers to the attainment of learning outcomes, which cannot be separated from the learning process itself, as learning is a continuous process. Academic achievement is the outcome obtained by an individual after engaging in learning activities (Mulyasa, 2017: 189). It represents the acquisition of knowledge or skills developed through the learning materials, demonstrated through test scores or numerical grades (Fitriwati as chcited in Chien, 2018, p. 199).

Mathematics is separated from thematic learning because fundamentally, in order to solve problems, one must understand mathematical concepts. Therefore, the key to mathematics education is the students' understanding of concepts. Thus, an elementary school teacher must ensure that students do not make conceptual mistakes in their learning. Students can fully develop their language skills and academic potential, and it is the responsibility of the teacher to design engaging and innovative mathematics lessons so that students can achieve optimal communication skills and learning achievements. Elementary school mathematics education equips students with logical, analytical, systematic, critical thinking, and collaborative skills (Kenedi, Helsa, Ariani, Zainil, Hendri, 2019, p. 69).

Based on the interview conducted on November 28, 2022, and the observations conducted on November 24-25, 2022, with the fifth-grade teacher, Mrs. Pujiyati, S.Pd.SD, it was found that during the lessons, the teacher did not use engaging instructional media such as colorful pictures, videos, audio, and other illustrations. The teacher also lacked appropriate use of teaching models. These factors led to students not understanding the material being taught and perceiving the learning process as boring. In the mid-term assessment (PTS) of the academic year 2022/2023, it was observed that among the 21 students in fifth grade at Danasri 01 Public Elementary School (comprising 11 females and 10 males), in the subject of Mathematics, which had a minimum passing grade (KKM) of 70, the highest score achieved was 100, while the lowest was 40. As a result, only 10 students passed the subject, while 11 students did not meet the passing criteria. The overall achievement of the fifth-grade students at Danasri 01 Public Elementary School01 was 47%, indicating that it was not at its maximum potential, necessitating improvement.

The learning outcomes of the fifth-grade students at Danasri 01 Public Elementary Schools Indicate that many students are below the Minimum Passing Criteria (KKM). This is primarily due to a lack of enthusiasm among students, resulting in less enjoyable and effective learning experiences. In the classroom, the teacher rarely utilizes engaging materials or effective teaching approaches. Considering the importance of education, the issues faced can only be addressed by improving the learning process itself. To address the low learning outcomes, it is necessary to make improvements in the teaching methods. Based on discussions with the teacher and literature review, one possible

solution to overcome these challenges is to implement the PBL model with the assistance of instructional media using the Canva application for *Heyzine Flipbooks*. This approach would incorporate videos, images, text, and audio to create engaging learning materials.

The learning model to address this issue involves using the PBL approach. A learning model is a design to facilitate the growth and development of students through active participation in detailed learning scenarios (Sukmadinata and Syaodih in Julaeha and Mohammad, 2022, p. 136). The learning model encompasses learning strategies that include the processes, resources, and methods that can be employed by students. A learning method is also a learning strategy, determining the actions that need to be followed to achieve the desired goals.

In addition to using the learning model, this research also utilizes instructional media to enhance classroom learning. Instructional media serves as tools used by learners to aid the learning process in the classroom, as explained by (Falahudin & Iwan, 2014, p. 108). Instructional media refers to the technology used as a carrier of messages to be conveyed to students, which can be utilized for educational purposes. These instructional media take the form of physical entities used to deliver instructional content, such as *Heyzine FlipbooksI*, which are electronic books capable of presenting materials in the form of images, audio, and video, and can be accessed through the Canva application (Zaki & Diyan, 2020, p. 812).

The research problem in this study is how the implementation of the PBL model assisted by *Heyzine FlipbooksI* media can enhance students' communication skills in the topic of cubic and rectangular prisms in fifth-grade at Danasri 01 Public Elementary School. Additionally, the study aims to investigate how the implementation of the PBL model assisted by *Heyzine FlipbooksI* media can improve students' learning achievements in the topic of cubic and rectangular prisms in fifth-grade at Danasri 01 Public Elementary School. The objectives of this research are to determine whether PBL can improve students' communication skills in the topic of cubic and rectangular prisms in fifth-grade at Danasri 01 Public Elementary School through the use of the PBL model. Additionally, the study aims to determine whether PBL can enhance students' learning achievements in the topic of cubic and rectangular prisms in fifth-grade at Danasri 01 Public Elementary School through the use of the PBL model.

RESEARCH METHOD

The type of research conducted is Classroom Action Research (CAR). CAR is a practical research method used to improve classroom learning (Suyanto as cited in Azizatun, 2017, p. 3). In the pursuit of improvement, actions are taken to seek answers to issues raised from the daily activities of the teacher in the classroom.

This study utilizes the Kemmis and McTaggart's Taggart Design. The McTaggart Cycle model demonstrates that each cycle consists of four distinct phases: the preparation phase, the action phase, the observation phase, and the reflection phase. This model simplifies the stages of the action, making it easily understandable for the researcher. The applied design of the Classroom Action Research (CAR) is as follows, understood by the researcher (Arikunto & Suharmi, 2014).

Five Grade of Danasri 01 Public Elementary School in Cilacap has a total of 21 students (10 males and 11 females). Through the implementation of the PBL model aided by *Heyzine FlipbooksI* media, the researcher aims to improve better communication and academic success among the students. This classroom action research consists of 4 sessions, divided into 2 cycles of meetings. Each meeting takes place for 1 session (3 x 35 minutes) and occurs from March 8th to March 16th, 2023. Teacher and student observations are conducted during each meeting.

To evaluate students' progress in the concept of statistics using the PBL framework, this research utilizes both test and non-test techniques. The following techniques are employed to collect data in this study: the test technique serves as an assessment measurement tool (Sudijono, 2013). There are three types of tests that can be used for data collection: written tests, oral tests, and performance-based tests. At the end of each PBL classroom session, students are given a written examination consisting of essay questions. This evaluation is used to track the extent of progress achieved by students during the learning process. Both teachers and students can utilize observation sheets to collect data on learning practices. The scale used in this research ranges from 1 to 5. The lowest score is 1, while the highest score is 5 (Tampubulon, 2013).

Assessment that does not rely on traditional testing tools, such as those based on students' own experiences (Muryaningsih, S., & Ariyati, A. 2020, p. Conducting systematic observations, interviews, and reviewing or studying papers are examples of non-test procedures that can be used to infer information about students' cognitive

functions. Non-test techniques in this research are employed to evaluate the learning that has been conducted.

RESULTS AND DISCUSSION

This Classroom Action Research is based on the findings from Cycle I and Cycle II regarding students' communication skills and academic achievement. The research was conducted in the fifth grade of Danasri 01 Public Elementary School, focusing on mathematics learning with the topic of volume of cube and rectangular prisms. The results of the study revealed an improvement in students' communication skills and academic achievement. The enhancement in students' communication skills was based on the observation sheets of student activities, while the improvement in academic achievement can be observed through the evaluation sheets.

1. Improvement in students' communication skills

The analysis of the PBL assisted by *Heyzine* learning model on communication skills was conducted. The observation sheets of activities were used by students from the beginning to the end of the sessions. Effective communication between students and teachers is essential, and through the learning activities from the beginning to the end, students' communication skills are expected to be trained and significantly improved.

The improvement in communication can also be visualized through the use of Histogram 1, as shown below:

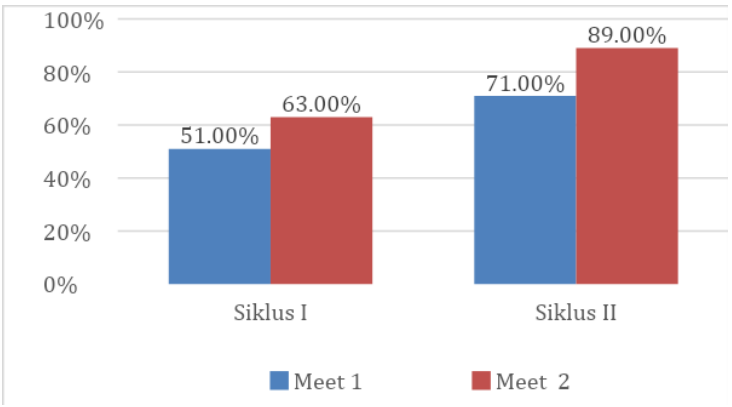

Image 1 The histogram is based on the results of the student activity table that has been created. The histogram provides a clearer representation of the table's findings. It depicts the proportion of students who successfully completed each session in Cycle I. In the first session, 51% of students completed it, while 63% completed the second

session. In Cycle II, the first session had a completion rate of 71%, while the second session had a completion rate of 89%. Based on the histogram, it becomes easier for us to observe the improvement in students' communication skills.

Based on the findings of Cycle I, the PBL model did not play a significant role in helping students develop their communication skills. This occurred because students appeared passive during the learning process, showing reluctance to speak up. When given the opportunity to ask questions, they chose to remain silent. Only a few students dared to ask questions or express their opinions to the teacher, likely influenced by the online learning environment at home. This observation is supported by a study titled "Communication Barriers in Online Learning for Teachers, Students, and Parents of Students of Public Elementary School I Teluk Pucung." The study provides further evidence that students displayed passivity during the learning process, reluctance to speak, choosing silence when given the chance to ask questions, and only a small number of students daring to ask questions and express their opinions to the teacher. Communication barriers between instructors, students, and parents in Grade 3 within the online learning environment of SDN Teluk Pucung Bekasi Utara were investigated (Ayu & Aan, 2023, p. 910). The findings of this study indicate the presence of communication barriers in the current context of online education. In contrast, the findings of Cycle II indicate an improvement in students' communication skills. This improvement is attributed to students actively participating in group discussions, where they confidently express their opinions using proper and coherent sentences. Through both group and class discussions, a positive relationship among peers is fostered.

Despite the PBL learning model in Cycle I did not have a significant impact on students' communication skills, Cycle II demonstrates that the model can enhance and develop students' communication abilities, indicating its potential as an effective tool for classroom use at Danasri 01 Public Elementary School. Students benefited from the use of instructional media such as *Heyzine FlipbooksI* as they became more engaged in the learning process, enthusiastic about the presented materials, and less prone to boredom. The increased findings from student observations in Cycle II support this claim. The communication skills developed through this approach serve as a means of equipping

students to face real-life situations in the future, making their communication abilities influential and beneficial to their own personal growth.

Group discussions, where students share ideas and perspectives, are one way in which students can enhance their communication skills while learning mathematics using the PBL model supported by *Heyzine FlipbooksI*. Student participation also increases through other means, such as creating and presenting works or engaging in discussions, where students feel more confident and effectively use the Indonesian language to convey their discussion outcomes. This is supported by the views of Kodariyati & Astuti in their article titled "The Influence of the PBL Model on Communication Skills and Mathematics Problem Solving of Fifth Grade Students." The research findings demonstrate that students' ability to interact with others has improved as a result of this study. According to Kodariyati and Astuti (2016), experimental Classes 1 and 2 showed an improvement in mathematical communication skills based on their calculations. Similarly, Puji, F. H. states in their article titled "Application Of The PBL Model To Improve Communicating Skill In Elementary School Students" that the aim of their research was to help Grade IV students at SD Negeri 01 become better communicators. Grade IV students at SD Negeri 01 Papahan Karanganyar successfully utilized the PBL learning method for communication topics during the 2020/21 academic year (Puji, F. H. 2021).

2. Improvement in Student Learning Achievement

Five Grade students at Danasri 01 Public Elementary School have utilized the PBL model and *Heyzine FlipbooksI* as instructional tools for the topic of volume of cubes and rectangular prisms. Throughout the learning process, students actively and enthusiastically engage in classroom activities, paying close attention to the subjects being taught by their teachers. The learning achievement of students in each learning cycle is determined by their responses to assessment questions given at the end of Cycle I and Cycle II. Table 1 below illustrates the improvement in student achievement:

Table 1: Improvement in Students' Learning Achievement Results in Cycle I and II

Cycle	Lowest Score	Highest Score	Mastery	Relative Frequency
Actions	40	100	10	10/21 x 100% = 48%
I	30	100	13	13/21 x 100% = 62%
II	60	100	18	18/21 x 100% = 86%

Table 1 clearly indicates an improvement in Mathematics achievement. In Cycle I, 8 out of 21 students did not meet the passing criteria, while 13 students were deemed successful. In Cycle II, out of the total 21 students, 18 passed while 3 did not. The proportion of students who passed the Minimum Completion Criteria (KKM) increased from 62% in Cycle I to 86% in Cycle II. Therefore, based on the percentage results, there was a 24% improvement from Cycle I to Cycle II, surpassing the previously established success indicator.

According to the data collected during Cycle I, student achievement is still not satisfactory. Poor academic performance of students can have various underlying causes, including both internal and external factors. For example, if the classroom does not have black markers, students will not be able to take notes by writing on the whiteboard. Some students still wander around the classroom. There are still students who talk to their friends while the teacher is explaining the results of the discussion at the front of the class. Some students still engage in play with their classmates. In terms of learning, students lack curiosity. Student achievement is influenced by two main factors: physiological and psychological aspects of students as internal factors, and external factors including social and non-social factors (Mulyasa, 2014). Student learning achievement is not optimal. This is evident from the fact that many students have not met the minimum passing criteria (KKM) set by the school, which is 70 for mathematics. In this cycle, students are still adjusting to the learning model used by the teacher.

In Cycle II, the teacher mastered the PBL learning model and its implementation in the classroom. As a result, students gained a better understanding of the subject matter, actively participated in the learning process, attentively listened to the teacher's explanations, and asked insightful questions designed to deepen their understanding. Additionally, the use of *Heyzine FlipbooksI* as instructional media captured students' attention during the learning process. Improving the teaching process directly impacted student learning achievement.

These findings demonstrate that the PBL model, when supplemented with *Heyzine FlipbooksI* as a media tool, can enhance student achievement and communication skills. This is evidenced by the fact that 86% of students have reached the KKM (minimum passing criteria) in mathematics. This acquisition is supported by research conducted by Hayati, A. B. in their study titled "Efforts to Improve Mathematics Learning Achievement Using Teaching Aids in Grade IV A of SD Negeri Pajambon, Kramatmulya District, Kuningan Regency." The researchers aimed to determine whether the use of assistive technology leads to an improvement in mathematical performance, particularly in the topic of fractions. The results indicate that Grade IV A students at SD Negeri Pajambon, Kramatmulya District, Kuningan Regency, in the 2017/2018 academic year, were able to utilize teaching aids to enhance their learning experience in mathematics in the classroom (Hayati, A. 2019, p. 65).

The improvement in student learning achievement in Cycle II can be attributed to the fulfillment of all teaching activities by the teacher, using the PBL learning model assisted by *Heyzine FlipbooksI* as instructional media. The teacher's activities align with the lesson plan (RPP), resulting in increased student engagement. As a result, student learning achievement also improved.

CONCLUSION

Research conducted in Five Grade at Danasri 01 Public Elementary School highlights the following points. The communication skills of Five Grade students are influenced by the PBL model with the use of *Heyzine FlipbooksI* as instructional media. The student observation sheets clearly demonstrate this improvement. The enhancement in communication skills is evident in the learning process, where students exhibit behaviors that prove their increased communication abilities, such as actively participating in discussions and expressing ideas using clear and concise sentences. Through group discussions and presenting the outcomes of their discussions in front of the class, students become accustomed to communicating with others. The improvement in students' communication skills occurs in Cycle II. In Cycle I, the percentage of students' communication skills was 57%, which then increased to 80% in Cycle II. Based on these results, it can be concluded that the PBL learning model

supported by *Heyzine FlipbooksI* can enhance students' communication skills in Five Grade at Danasri 01 Public Elementary School in Cilacap.

The PBL model supported by *Heyzine FlipbooksI* also has an impact on student performance. Evaluations conducted at the end of each cycle are used to determine improvements. Incorporating *Heyzine FlipbooksI* into the pedagogical framework of PBL proves beneficial for both instructors and students. Students gain a deeper understanding of the material and become more engaged in the classroom, leading to higher achievement. This is supported by the data from Cycle I in the subject of mathematics, specifically the topic of volume of rectangular prisms and cubes, where the average score reached 70 and the classical mastery percentage in Cycle I reached 62%. In Cycle II, there was an improvement with an average score of 87 and a classical mastery percentage of 86%. Based on these findings, it can be concluded that the PBL learning model can enhance student learning achievement in Five Grade at Danasri 01 Public Elementary School in Cilacap.

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