


Collaborative Analysis of Students in Mathematics Learning in Class V of SD Negeri 1 Karanglewas

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ABSTRACT

Collaborative Analysis of Students in Mathematics Learning Class V SD Negeri 1 Karanglewas. The purpose of this study is to find out how collaborative it is between grade V students of SD Negeri 1 Karanglewas in mathematics learning. The method used in this study is a descriptive research method with a qualitative approach. With a population of 11 students in grade V of SD Negeri 1 Karanglewas, 3 students were then taken based on the level of student ability as a research sample based on *the purpose sampling* technique taken based on the consideration of abilities divided from 1 student with high ability, 1 student with medium ability and 1 student with low ability. The results of the study show that the collaborative nature of grade V students in mathematics learning has developed well, although there are still various aspects that require further guidance. Overall, support from teachers and principals through an active learning approach plays a role in fostering students' collaborative skills. The results of the interviews conducted were in line with previous observations.

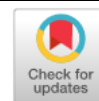
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INTRODUCTION

Mathematics learning in elementary school often faces various challenges that affect the quality of student learning outcomes. One of the main problems is the low active participation of students in the learning process. According to research by Ikasari et al., (2017)) Low student participation is caused by a lack of variety in learning models, teacher dominance in the classroom, and passive attitude of students who are not actively involved in discussions or group activities.

Collaborative work in mathematics learning in elementary schools has a very important role in developing the quality of education. The collaborative learning model allows students to collaborate in groups, exchange ideas, and solve problems together. This not only develops knowledge of mathematical concepts, but also expands students' communication and social skills. The importance of utilizing 4C skills is one of them being collaborative in education, according to Nurhayati (Setiana & Muslim, 2024) To train students to have social skills that are needed in learning activities so that educators are able to keep up with the progress of the times and help students have good social relationships in the people.

Research conducted by Aulia et al., (2023) states that collaborative learning methods are effective in developing analytical thinking skills, critical, and the ability to work together in solving mathematical problems in students. This research shows that through working in groups, students can help each other and enrich their understanding of math material. Previous research conducted by Sukmawati & Siswono, (2021) That is, analyzing students' mathematical communication skills through collaborative problem solving. The results showed that students who engaged in collaborative problem solving had better mathematical

communication skills compared to those who did not. *Collaboration skill* according to Puspitasari (Ulhusna et al., 2020) The ability to collaborate has an important role in classroom activities because it is able to develop students' understanding in achieving learning goals. Students who learn collaboratively tend to gain more knowledge. Application *collaboration skill* In elementary school students, it can be carried out through a learning model that encourages them to divide tasks fairly, motivate each other to be responsible for their respective tasks, and develop social skills effectively.

The implementation of the curriculum can be seen from the learning process. Learning according to Junaedi Ifan, (2019), "learning is all efforts carried out by educators so that there is a learning process in students in which there are activities to determine, choose and expand methods to achieve the expected learning results". According to this, the efforts of educators in the learning process of students are very important because they determine the success of the implementation. One of the good learning processes that must be mastered by students is the mathematics learning process. Mathematics learning according to Mulyardi ((Kurniawati & Ekayanti, 2020), "Mathematics learning is a process to support students in building their own understanding of mathematical principles or concepts through the internalization process, so that these principles or concepts are formed independently in them". In mathematics learning, the success of a teaching is influenced by factors summarized in the teaching system. One of the important elements that affect the success of teaching is the existence of cooperation or collaboration. Mathematics learning is directed to instill and deepen understanding of concepts and develop skills, in order to equip students in facing and solving problems that are present in daily life.

Thus, in order to support one of the skills of students in the future, the importance of collaboration is carried out during the learning process by forming a group in solving mathematical problems *The Partnership for 21st Century Skills* according to Van Laar (Pare & Sihotang, 2023) Grouping 21st century skills into three types, namely learning skills (innovation and creativity; critical thinking and problem-solving; communication and collaborative), literacy skills (media literacy; information literacy; ICT literacy), and life skills (adaptability and flexibility; self-direction and initiative; cross-cultural and social skills; responsibility and productivity; responsibility and leadership). In terms of education, according to Lubis (Pare & Sihotang, 2023) The main focus lies in the development of 21st century skills which aim to equip students to be able to face changes in the social, economic, and technological fields in the information age. Therefore, collaborative skills are very important to prepare students to adapt to the various dynamics of these changes. Zubaidah (E.g., et al., 2019) Stating that collaborative indicators are working productively, respecting each other, compromising and taking responsibility.

In this study, the researcher will analyze the collaborative of grade V students of SD Negeri 1 Karanglewas in mathematics learning in order to analyze how collaborative occurs between grade V students in mathematics learning at SD Negeri 1 Karanglewas. Information from the classroom teacher, the result is that students often take a long time to complete assignments, and there are still a number of students who do not contribute enough to carry out group assignments given by educators. These problems show that students are not optimal in mathematics learning. The subjects in this study were 3 students in grade V of SD Negeri 1 Karanglewas to be analyzed collaboratively by students.

The purpose of this study is to describe how the collaborative form that occurs between grade V students in mathematics learning at SD Negeri 1 Karanglewas. The main contribution of this study is to provide a deeper understanding of how collaborative it is between grade V students in mathematics learning at SD Negeri 1 Karanglewas. The results of this study are theoretically expected to be able to provide theoretical information related to students' collaboration in mathematics learning. Meanwhile, practically for educators; The results of this study are expected to be able to be the foundation for knowing students' collaborative in achieving mathematics learning goals and can be used as a reference for future learning. For

schools; school as an educational institution, the results of this study are expected to have an impact and be used as a reference in improving the quality of learning. For students; The results of this study are expected to be able to help in terms of student learning to understand and work on problems in mathematics learning. For researchers; The results of this study are expected to be able to provide experience and knowledge for researchers in collaborative analysis of students in mathematics learning. Later, the results of the learning improvements obtained can add useful insights in the implementation of duties as prospective elementary school teachers in the future.

METHOD

This study was carried out at SD Negeri 1 Karanglewas in the even semester of the 2024/2025 school year. The type of research used in this study is qualitative research to describe how collaborative it is between grade V students in mathematics learning at SD Negeri 1 Karanglewas. Bongdan and Taylor (Safrudin et al., 2023) conveyed that qualitative research methodology is research that produces descriptive data, either in the form of verbal or written words from people or observed behaviors. This method is suitable for use because it can provide a real picture of the facts on the ground. The subjects used were 3 students in grade V of SD Negeri 1 Karanglewas. Sampling techniques utilize *purposive sampling* by paying attention to heterogeneous abilities.

Data Collection Techniques in Qualitative Research according to Ardiansyah et al., (2023) are among others; (1) Interviews are methods of collecting data that are carried out through direct interaction between participants and research researchers. (2) Observation is a data collection technique that is carried out by directly observing the behavior of participants and situations related to the phenomenon being studied. Qualitative observations can be carried out in real circumstances or in an environment that is deliberately prepared for research needs. (3) Documentation is the process of collecting information through archives, documents, or other written materials relevant to the object of research. The documents used can be in the form of reports, notes, books, letters, or other official documents. Research Instruments in Qualitative Research are; (a) The interview guide contains the topic or list of questions to be discussed in the qualitative interview. (b) An observation checklist is a tool used to write and pay attention to important aspects of the observation process. (c) Guidelines for study documentation, its content is a guide to collecting data from written materials or documents related to research phenomena.

The results of the analysis are in the form of a descriptive description of the student's collaborative word until the student's collaborative level is known. Data analysis using opinions from Rijali, (2018) who said that qualitative data analysis activities are integrated with data reduction activities, data collection, data presentation and concluding research results. The researcher was assisted by the classroom teacher in collecting data from the results of the observations conducted by utilizing an observation sheet containing the following collaborative indicators.

Table 1. Collaborative Indicators

Yes	Indicator	Criterion
1	Work Productively	Make efficient use of all time in completing tasks by working together.
2	Mutual Respect	Show respect by respecting each participant in discussions and opinions between members
3	Compromise	Compromise with fellow members flexibly in order to achieve the main goal of solving problems
4	Responsibility	Each student has the same obligation to work together to achieve common goals, by contributing to the maximum, carrying out their duties well, and following the responsibilities that have been set.

Source: (E.g., et al., 2019)

Triangulation is a technique to check the validity of the data in this study. There are two types of triangulation used in this qualitative research method, namely (1) Technical triangulation, from Sugiono's opinion (Alfansyur & Mariyani, 2020) The triangulation technique is a method to test the validity of data by comparing and confirming data obtained from a single source using several different data collection techniques. This means that the researcher relies on various methods to obtain information from the same source to ensure the correctness of the data. In this case, the researcher is able to cross the methods of interview, documentation and observation which are then mixed into one to obtain a conclusion. (2) Source triangulation, source triangulation according to Azmah, (2018). The purpose of source triangulation is to test the validity or credibility of the data by verifying the data that has been collected from various parties, such as subject teachers, homeroom teachers, BK teachers, and school principals. This method is also used to ensure the validity of data by utilizing various sources of information as comparative materials. In this context, the author conducts a comparison between the observation data and the interview results, as well as comparing the results of one interview with another.

FINDINGS AND DISCUSSION

The results of the research and discussion were obtained from interviews and observations based on collaborative indicators. The data from the results of the students' collaborative research in mathematics learning in grade V of SD Negeri 1 Karanglewas include:

Work Productively

In mathematics learning in the classroom, according to the results of interviews and observations that went well, it was obtained that the indicators of productive work in collaborative groups have been reflected in the behavior of students in the classroom. This is in accordance with the interview conducted with Amira, a grade V student, namely: "I usually invite my friends to do their assignments first so that they don't get confused. Then I also help if there are people who don't understand, so that everyone can work together". Apart from Amira, other informants from class V turned out to have the same opinion. Dinda said "I help explain the lesson slowly, sometimes I show you how to work on problems". Amira and Dinda showed an active role by dividing tasks, explaining the material to friends who were struggling, and providing examples of working on problems as a form of learning support. This reflects an awareness of collective responsibility and a willingness to achieve common goals. This is in line with the research carried out by Aziz & Rasyid, (2025) stating that harmonious and positive relationships between team members are an important factor that influences productivity. Mutually supportive, open, and effective communication creates a conducive atmosphere for team participants to share ideas, help each other, and collaborate efficiently.

From the perspective of the classroom teacher, students are generally able to divide roles, discuss, and document ideas to improve the effectiveness of group work. Grade V teacher Mrs. Eliyati said, "Students show respect by listening, not interrupting conversations, and nodding when others speak. Some also made polite comments despite differing opinions." This is reinforced by the principal's observation that students actively help their peers understand the teacher's instructions and complete tasks in a collaborative spirit. Here's the full story: "Usually students will divide tasks and remind each other. There are also those who directly discuss and record their best ideas so that the task is completed quickly". Engaging roles in the group in line with research by Sentanu & Yustiari, (2024) which states that the basic principle of collaboration is the distribution of responsibilities fairly and in accordance with the portion of the ability of each party. Equitable sharing of responsibilities is also useful to ensure that all parties feel involved in the process together to achieve the same end goal. Thus, the indicators of productive work as part of collaborative skills can be said to have developed well through

mutual aid attitudes, role sharing, and collective responsibility among students, as reflected in the interviews conducted.

Mutual Respect

Overall, based on the results of the interviews, it shows that the school is trying to encourage students to respect each other in a collaborative way, but there must be room for improvement, especially in providing further guidance to passive students. Amira, shows respect by listening to her friend's opinion first, then expressing her own opinion, and together choosing the best solution. In the interview, Amira replied, "I first listened to his opinion, then I said my opinion as well. If it is different, we choose the one that is most suitable for the task". As for the student named Dimas from the same class, it shows that not all students have the initiative to encourage the involvement of friends, because they choose to remain silent when their friends are also not talking. This can be observed from the results of the interview, namely "I don't know what to do, sometimes I also have to be together". The class teacher said, to be able to collaborate, students generally show respect in group discussions by not interrupting the conversation, paying attention with body language such as nods, and expressing differences of opinion politely. Here is the narrator: "Students show respect by listening, not interrupting the conversation, and nodding when the conversation is interrupted, some also make polite comments. even though there are different opinions". Mutual respect is an essential foundation for successful collaborative and effective learning. This study is in line with the research carried out by Yusuf et al., (2025) which says that when values such as responsibility, justice, honesty, and mutual respect are upheld by all members of the organization, this creates a conducive and harmonious work atmosphere for effective cooperation. This research is also strengthened by Sentanu & Yustiari, (2024) that collaborative prioritizes the attitude of respecting and respecting every difference that exists in the group.

The principal of the school, Mrs. Mindiati in an interview, said, "There is the mas. We have a project-based learning program and group discussions that emphasize the importance of listening and respecting all opinions". From the results of the interview, Mrs. Mindiati emphasized that mutual respect is encouraged through learning approaches such as *project-based learning* and group discussions, designed to foster a culture of listening and appreciating all ideas. This is in line with research conducted by Sitinjak et al., (2022) by utilizing learning methods *Project Based Learning* (PjBL), states that students face positive developments, especially curiosity, tolerance, active, open to input, respect for the opinions and achievements of friends, communicative, accepting different opinions. Thus, indicators of mutual respect in collaboration can be seen from students' ability to listen to friends' opinions, provide space for participation, and convey differences politely. Learning programs that emphasize group discussions have proven to be effective in encouraging the development of this attitude, although guidance is still needed for students who have not actively demonstrated collaborative initiatives.

Compromise

Compromising attitudes in group work have begun to develop among students, albeit with different variations in approaches and depth of understanding. This was shown by Amira who said, "The problem is that we don't work alone. If only one person continues, the others will not be enthusiastic. So the compromise is so that everyone feels like they are working". From the interview, Amira understood the importance of compromise as an effort to maintain the spirit of group work and encourage the involvement of all members. He realized that collaboration is not just about following one person, but finding common agreement. Disagree with Dinda who said, "Ever, but my friends don't agree. Finally I realized and we chose together". Dinda has experience in imposing opinions and feeling the negative impact, so she finally chooses to discuss together and make decisions together. This shows the existence of an important social learning process. From the perspective of the teacher, the compromise classroom is considered important because it trains students to respect each other and cultivate unselfish character. Compromise is not only to resolve differences of opinion, but also to avoid

conflict. Students who are able to compromise feel more open to input and have a tendency to resolve conflicts peacefully. As Mrs. Eliyati, a teacher of grade V, said: "Because by compromise, they learn to respect each other and do not feel that they have to win on their own. This is very important in character building". This is in line with research Setyowati & Utomo, (2024) stated that respecting differences of opinion is one of the important things when wanting to instill character in the school environment. Likewise, the research conducted by Harlita & Ramadan, (2024) who said that to reach a compromise, students are able to manage differences of opinion well, avoid adverse conflicts, and use the deliberation process. Compromising is already evident in students' attitudes through discussion, joint decision-making, and a willingness not to impose their will. This process is not only important for learning outcomes, but also supports the formation of mature social character.

Responsibility

Collaborative indicators of responsibility are already evident in student behavior through tangible actions such as time management, helping struggling peers, and a willingness to correct mistakes, albeit with some challenges that still need to be guided. Amira shows personal responsibility by creating a small schedule to ensure her tasks are completed on time, "I make small schedules in a notebook. So I know when to do it, and I try not to procrastinate". This reflects the awareness of time and discipline. As said by Ningrum et al., (2020) In his research entitled "Factors Shaping the Character of Discipline and Responsibility in Scout Extracurriculars" said that "The existence of discipline embedded in a person creates a great attitude of responsibility, by having disciplinary behavior, a student or child tends to be more independent and not spoiled in his responsibility to always obey the rules". While Dimas had forgotten to do his duties, he showed a responsible attitude by admitting mistakes and immediately correcting them. Dimas said, "Ever. I'm sorry, I keep hurrying up at school." This is in line with research conducted by Lathifah & Helmanto, (2019) saying that the act of correcting mistakes is a simple form of responsibility. While the principal emphasized that the lack of responsibility from one member can have a negative impact on group dynamics, such as lowering enthusiasm, motivation, and disrupting the smooth flow of work, which he said in the interview that "one irresponsible student can hinder teamwork and lower group spirit. This can have an impact on the final results of their group's work". This is in accordance with Slavin's opinion (Ulum et al., 2025) who said that group learning is a method that is commonly applied in elementary schools, because it can improve students' ability to collaborate, communicate, and sense of social responsibility. However, in practice, there is often an imbalance of roles among group members. This makes some students dominate the activity, while others tend to be passive or not even contribute at all. This imbalance not only interferes with the smooth running of cooperation, but also can reduce students' motivation to learn and trigger social conflicts in the classroom.

CONCLUSIONS

Research at SD Negeri 1 Karanglewas shows that the collaborative ability of grade V students in mathematics learning has developed well, although there are still a number of aspects that require further guidance. Overall, support from teachers and principals through an active learning approach plays a role in fostering students' collaborative skills. These results are reinforced by a number of relevant studies that emphasize the importance of fair role sharing, mutual respect, peaceful conflict resolution, and personal responsibility in improving the effectiveness of group work and shaping student character.

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