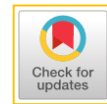



The profile of compromise skills in collaborative learning environments in elementary schools



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ABSTRACT

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Collaboration is one of the essential "4C" skills required to foster learning that responds to students' adaptation needs in a 21st-century environment. An important aspect of collaboration that can be examined in group-based, problem-solving learning is productive teamwork. This study explores the productive teamwork aspect of collaboration skills among sixth-grade students at Setono Public Elementary School, utilizing Greenstein's framework, particularly in the context of problem-based learning. This research adopts a descriptive qualitative approach. The study participants include both students and teachers of the sixth grade at Setono Public Elementary School, Surakarta. Data collection methods comprised observations, interviews, questionnaires, and documentation studies. To ensure data validity, technique and source triangulation were applied. The collected data were then analyzed through the interactive data analysis model of Miles and Huberman. Findings from this study reveal that students are able to work productively in group-structured, problem-based learning settings. This is evidenced by the manifestation of all productive teamwork indicators within the learning activities. The productivity demonstrated by students is further supported by other facets of collaboration skills.



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1. Introduction

The 4C skills (Critical Thinking, Communication, Creativity, and Collaboration) are essential competencies emerging in response to the demands of 21st-century education, focusing on skill reinforcement to prepare students to meet global challenges [1]. These skills are designed to help students adapt and compete in an era of global competition [2]. In an educational context, the 4C skills aim to shift the focus of learning from merely content delivery to an experience centered on skill development [3]. Among these, collaboration is a crucial skill necessary for achieving learning goals [4]. Advances in information and communication technology have also transformed how students learn and interact socially, increasing the demand for collaboration skills. These skills are seen as crucial for maintaining human essence as social beings amid digital transformation [5]. Collaboration itself is a form of social interaction occurring in activities aimed at achieving a common goal. Research shows that group-based learning helps each member collectively absorb the material [6]. Collaboration fosters more collective learning, provides opportunities for active student participation, and helps students develop competencies in teamwork, mutual assistance, and shared responsibility in achieving a better understanding. Through collaboration, students can interact more effectively, reducing learning fatigue due to the dynamic engagement with peers. However, students' collaborative skills, especially in problem-solving, remain relatively low. Although students can understand the problem, many struggle to find effective solutions. Some students with low problem-

solving skills lack clear strategies for resolving issues [7]. This condition may result from various factors, such as IQ levels, limited practice in problem-solving, insufficient use of learning media, and a limited understanding of the problems faced. Another factor exacerbating this issue is the variation in methods applied within problem-based learning, making it difficult for students to develop consistent and effective problem-solving strategies [8].

The implementation of problem-based learning (PBL) with group interaction in sixth-grade classes at Elementary School Setono Surakarta represents one practice of collaborative learning. Document review of the Lesson Plans (RPP) revealed that several learning activities utilized the PBL model emphasizing group interaction. Preliminary interviews with teachers indicated that group-based problem-solving learning enhances learning effectiveness. Students can assist one another in mastering the material, becoming more active and less easily bored due to the opportunity for group interaction. In Greenstein's perspective [9], collaboration skills comprise several fundamental components, including working productively, respecting opinions, compromising, and sharing responsibility. Each aspect of collaboration is interrelated and plays a significant role in group-based learning. For instance, working productively involves the efficient use of time to complete tasks punctually. With these indicators, we can assess how students' collaborative skills manifest in classroom activities. Research shows that students' collaborative skills, in general, are still relatively low. Ilma et al., in their study on high school students' collaboration skills in science learning, found that students' productivity in completing tasks was still low, with only a small proportion of students able to complete assignments effectively [10]. Meanwhile, research by Rahmawati et al., found that high school students' collaboration skills in project-based learning were relatively good, though there was still room for improvement [11]. The primary difference between this study and previous research lies in its focus on collaboration skills in elementary school, with particular attention to productive work in sixth-grade classrooms.

Furthermore, the skill of compromising in the context of collaborative learning in elementary school plays a crucial role. Compromising requires students to resolve conflicts, respect differing opinions, and form agreements to achieve shared goals. However, this skill has yet to be widely examined specifically at the elementary level. As a component of collaboration skills, compromising is an essential tool for students in broader social life. Without this skill, students may face challenges in handling disagreements or conflicts in the future. This research aims to bridge this gap by exploring compromise skills in elementary students within collaborative learning contexts. Using Greenstein's indicators, this study will analyze how compromise skills are practiced by students and how these skills impact the quality of group interactions in learning. This research is expected to offer new insights into the importance of compromise skills in collaboration and contribute to designing more effective collaborative learning strategies in elementary schools. The novelty of this research lies in its specific focus on compromise skills as a key element in collaboration. Often overlooked or regarded as a general part of collaboration, this skill is seldom analyzed in terms of its complexity. By examining compromise as a distinct indicator, this research aims to provide a deeper, contextual understanding of its importance for elementary students. The urgency of this research is increasingly relevant in the digital age, where social interactions are becoming more complex. Online learning and virtual social interactions are now integral to students' lives. Compromise skills are essential in these situations, as students are expected to handle differing opinions, manage conflicts, and reach constructive agreements in both real and virtual environments. Equipping elementary students with compromise skills is vital as a foundation for navigating social and professional challenges. Through this study, elementary school students are expected to become better prepared for the challenges of the 21st century, where the ability to interact effectively, appreciate differences, and work harmoniously will be highly valuable. Developing compromise skills from an early age is not only crucial for academic success but also for their social lives, making this research relevant in the educational field and in shaping the character of future elementary students.

2. Method

This study employs a qualitative descriptive approach to examine compromise skills within collaborative learning environments among sixth-grade students at Setono Public Elementary School, Surakarta. A qualitative approach was chosen to enable the researcher to understand and interpret the meanings of phenomena that occur factually and contextually. Through this approach, data are collected and analyzed inductively, allowing research findings to emerge from facts and the interpretive experiences of research subjects [12]. Qualitative descriptive research enables the

researcher to observe phenomena in their natural form and to provide in-depth interpretation based on Greenstein's perspective, which elucidates collaboration skills, including aspects of compromise. Data collection began with classroom observations to capture the natural interactions among students engaged in problem-based learning activities. Observations focused on noting student behaviors when working in groups, particularly when situations required compromise. The researcher observed how students negotiated, divided tasks, and managed differing opinions to reach a collective solution. Observations included both verbal and non-verbal expressions indicating openness or resistance in collaborative situations. To supplement observation data, interviews were conducted with both students and teachers. The purpose of student interviews was to gain subjective perspectives on their experiences with collaborative activities and the challenges they faced when compromising with peers. Teacher interviews aimed to provide insights into how teachers observe students' compromise skills, strategies they employ to support these skills, and challenges encountered in collaborative learning.

Additionally, questionnaires were distributed to students to gather further data on students' views regarding the process of compromising and their understanding of the importance of this skill in collaborative learning. The questionnaires were designed to explore students' comprehension of compromise, their feelings when facing situations requiring compromise, and the frequency of their engagement in compromise activities in class. Data from the questionnaires offer an added perspective that helps gauge cognitive and affective aspects of compromise skills. The questionnaire data also assist in identifying any discrepancies or alignments between student and teacher perceptions regarding observed compromise skills. Document analysis complements data collection by reviewing various instructional documents, such as lesson plans (RPP) and classroom activity records. These documents were analyzed to understand how collaborative skills, particularly compromise skills, are incorporated into the curriculum and applied in daily learning. The lesson plans and other documents help the researcher obtain an overview of the approaches and strategies teachers use to encourage students to develop compromise skills.

The collected data were then analyzed using Miles and Huberman's interactive data analysis technique, which includes the stages of data reduction, data display, and conclusion drawing. Data reduction was performed to simplify and select relevant data on compromise skills from the obtained data set. Relevant data were categorized based on key themes such as student interactions, forms of compromise displayed, and the teacher's role in the collaborative process. This reduction process aims to focus on aspects directly related to the research objective, namely, compromise skills within the context of collaborative learning. Next, the reduced data were displayed in tables, diagrams, and narrative descriptions that illustrate interaction patterns and tendencies in student compromise. These displays allow the researcher to identify relationships within the data, compare student and teacher perceptions, and construct a detailed interpretation of the observed compromise skills. Tables and diagrams are used to show the frequency and intensity of compromise skills exhibited by students, while narratives clarify the context and meaning of these compromise patterns in learning situations. The final stage of analysis is conclusion drawing, based on the reduced and displayed data. Conclusions are drawn by linking empirical findings to the theoretical framework referenced, specifically Greenstein's perspective on collaboration skills. This analysis also considers results from interviews, questionnaires, and document studies analyzed through triangulation of techniques and sources to ensure data validity. Triangulation is achieved by comparing data from different data collection techniques and verifying the consistency of information from research subjects and supporting documents.

3. Results and Discussion

3.1. Results

The following is observational data on collaboration skills, specifically on aspects of compromise within problem-based learning. This data is presented in the Table 1. Table 1 presents data from observations of the aspect of compromise in group-based problem-based learning. Four indicators of the compromise aspect appeared during the learning activities. Based on the observations, it was found that when a student was presenting an argument, other students were listening attentively. The observation was conducted five times and revealed that students demonstrated good behavior when a peer was speaking, with no one trying to interrupt or compete to present their argument. When it was their turn to speak, students made good use of the opportunity. As a result, the discussion proceeded

smoothly. This indicates that students are balanced in terms of listening and speaking. In the indicator of courage to present arguments during group discussions, the observation revealed that out of 35 students, the majority were actively brave in presenting arguments during group discussions. However, during whole-class discussions, students would only speak and provide arguments when prompted by the teacher. If not invited to speak, students tended to play the role of listeners. Only four students were seen to actively speak without waiting to be invited by the teacher during whole-class discussions. In the indicator of openness to listening to peers' opinions, the observation showed that students were willing to listen to every opinion shared by their peers. Students were open to accepting arguments presented by others. No students showed signs of frustration when their peers presented differing opinions. This suggests that no students were insistent that their opinions were always correct and should be accepted by others.

Table 1. Observation Results on Collaboration Skills in the Aspect of Compromise

Collaboration Aspect	Indicators	Present/Not Present	Student, Percentage
Working Productively	Students are balanced in speaking and listening during the discussion activity	Present	(32/35) 91%
	Students are confident in providing arguments during group discussions	Present	(30/35) 86%
	Students demonstrate openness in listening to their peers' opinions	Present	(34/35) 97%
	Students are able to make decisions to solve problems	Present	(33/35) 94%

Therefore, there was never any disruption during either group or whole-class discussions. Additionally, based on five observation sessions, it was found that all groups were able to provide their respective answers to the problems presented. These answers were derived from various opinions discussed and agreed upon as solutions to the problem. Therefore, it can be concluded that students were able to think critically and discuss with their groupmates to make decisions for solving problems.

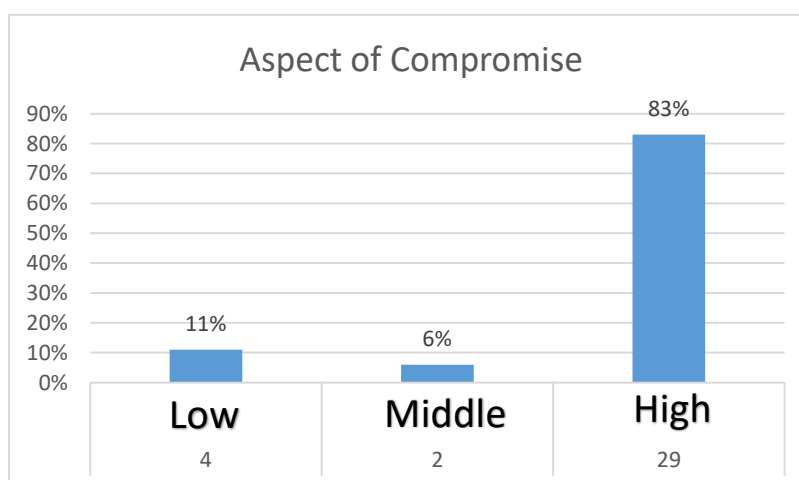


Fig. 1. Graph of survey results on collaboration skills in the aspect of compromise

Figure 1 shows the data from the questionnaire. The data was collected from feedback provided by students who were asked to fill out a questionnaire based on their experiences during group-based problem-solving learning activities. The results from the questionnaire reveal that 10% (or 4 students) fall into the low category. In the medium category, there are 2 students, representing 6%. Meanwhile, in the high category, 83% or 27 students were observed. Based on these results, it is evident that the aspect of compromising falls into the high category, with 83%. The data above suggests that group-based problem-solving learning can support the development of collaboration skills. In the case of compromising within the 6th-grade class at Setono Public Elementary School, all indicators of collaboration skills were observable during the learning process. The results show that all indicators reflect the presence of collaboration skills in learning using the PBM model. Thus, in this aspect, students can be considered highly collaborative in problem-based learning. The aspect of compromising is closely related to and influences other aspects of collaboration skills. This aligns

with Evans' argument that compromising is linked to the aspect of working productively [13]. Flexibility and the drive to help resolve issues through compromise are necessary to achieve shared goals. In other words, students' productivity in completing tasks and solving problems is related to their flexibility in presenting and accepting opinions [13]. Based on field findings, students were balanced in speaking and listening during discussions. In group discussions, students not only listened to peers coordinating solutions, but other students also dared to provide their own arguments. In addition to giving arguments, it was observed that students exhibited openness in receiving their peers' opinions. They were willing to listen to and accept the opinions shared by their group members as well as by other groups. This is related to the aspect of showing respect, which involves honoring others' opinions without belittling them. Students were open to listening, accepting, and respecting the opinions of their group members. The indicator of being open to listening to others' opinions suggests that students are willing to accept decisions made collectively, adapt in cooperation, and remain flexible when receiving input or counterarguments. This is consistent with Trilling & Fadels' (2009) explanation of collaboration skills, which include flexibility in accepting agreed-upon decisions, willingness to accept criticism and suggestions, being able to compromise, and reaching consensus in problem-solving [14]. The aspect of compromising is also related to the aspect of sharing responsibility. The discussions conducted by students reflect their awareness as group members who are tasked with solving a problem. One of the outcomes of compromise related to shared responsibility is the fair distribution of tasks. These findings are also supported by interviews with the teacher and feedback provided to students, which reflect the same outcomes observed during the learning activities. The findings on the aspect of compromising include the students' ability to balance speaking and listening. Specifically, students dared to provide arguments in discussions and were open to listening, allowing them and their group to reach a compromise in decision-making for solving a problem. The collective decision in solving problems helped students and their groups complete tasks on time. Document analysis results show that the lesson plans reinforce the findings from the observations. The lesson plans include Q&A activities, allowing students to both listen and speak during the discussions. In order to compromise in problem-solving, students must share responsibility. Responsible students prioritize the interests of the group, which can enhance productivity in resolving issues. This aligns with Rimoni & Averill's (2019) statement that responsibility within a group can influence coordination in problem-solving. This means that if each student is responsible and completes their assigned tasks, the group becomes productive in completing the tasks given. The responsibility students hold allows them to compromise in solving problems [15].

3.2. Discussion

Openness in listening to others' opinions also emerged as one of the indicators in the observation. Students did not show signs of dislike or tension when their peers' opinions differed, which indicates tolerance and respect for diversity. During discussions, they were open to receiving various viewpoints and did not feel that their own opinion had to be the only correct one. This created a constructive discussion atmosphere and supported the achievement of shared goals. In this regard, the compromising skill, which involves the willingness to listen to and accept others' opinions openly, is crucial. When students do not feel disagreement with differing opinions, they are more likely to contribute productively, helping the group move forward in solving the problem [16], [17]. Observation results also showed that 97% of students exhibited high openness in listening to their peers' opinions. This proves that they feel safe to share their opinions and, more importantly, they value diverse perspectives that may differ from their own. In this context, openness to others' opinions is vital as it allows students to explore a broader range of solutions and prevents feelings of isolation among group members. The indicator of courage in providing arguments was also quite significant in this observation. In small groups, the majority of students showed courage in offering their opinions and constructive arguments. This indicates that they felt safe and valued in contributing to the discussion [18]. However, in larger or whole-class discussions, only a few students dared to voice their opinions without being prompted by the teacher. This phenomenon reflects differences in dynamics between small-group and whole-class discussions, where, in small groups, students feel freer and more engaged, while in whole-class discussions, they may be more cautious and wait for their turn to speak. This also reflects a dependence on the rules and structure set by the teacher in managing the discussion. Therefore, this is an important focus in building students' confidence in speaking in front of larger groups [18].

This observation also revealed that 86% of students dared to give arguments in discussions. However, 14% were more passive, which indicates that they might need additional support to build

their confidence in speaking in front of larger groups. This could be an area for further development, especially in increasing students' courage to participate in larger, more structured class discussions. Given that the observation results show that students were able to reach a consensus in solving problems, it indicates their ability to make decisions together. This decision does not emerge randomly, but is the result of a discussion that includes various opinions and arguments put forward by group members. This process is evidence that students are not only engaged in the discussion but also in the decision-making process that involves compromise. In this case, decision-making is one of the pinnacles of compromising skills, where students are able to agree on one solution they believe is best based on their discussion results. This aligns with Evans, who states that the ability to make decisions in collaboration is closely related to flexibility in accepting and presenting various opinions, as well as the drive to achieve shared goals [13]. Along with this observation, approximately 94% of students were able to make collective decisions to resolve the assigned problems. This figure shows that they have the ability to work effectively in teams and make decisions based on compromise, considering various perspectives from group members. This result also reflects that problem-based learning has successfully developed decision-making skills that involve critical thinking and collaboration. The results of the questionnaire filled out by students also provide insight into how collaboration skills in the aspect of compromising are reflected in their experiences. Most students (83%) indicated that they felt they had mastered compromising skills well, which is reflected in their ability to work together in groups and achieve productive outcomes. In contrast, only a small percentage of students reported difficulty working collaboratively, with 10% in the low category and 6% in the medium category. This shows differences in comfort levels and skills in collaborative work among students, which may be influenced by factors such as self-confidence, previous experiences, or the way groups collaborate.

In the context of problem-based learning, which demands collaboration and collective problem-solving, compromising skills become a crucial aspect. Successful collaboration in solving problems requires each member's readiness to not only listen but also to offer and receive suggestions, share responsibility, and compromise for the shared goal [6], [19]. This is reflected in the problem-solving carried out by the groups observed. When each group member has the opportunity to participate actively and express their opinions, and they have a sense of responsibility toward the discussion's outcome, they can compromise in a way that mutually supports each other, thereby increasing the group's productivity in completing the tasks. The observation results also show that problem-based learning can serve as an effective platform for developing compromising skills in a collaborative context. With learning that emphasizes group discussions and collective decision-making, students learn to work together, appreciate differing opinions, and seek the best solutions through compromise. Such learning not only hones their academic skills but also social skills that are essential for daily life. Problem-based learning has proven to be a very effective means of developing collaboration skills, where students not only learn to solve problems together but also develop valuable social skills for their lives [19]–[21].

4. Conclusion

The conclusion of this study emphasizes that collaboration skills, particularly in the aspect of compromising, play an important role in supporting the success of problem-based learning in the classroom. Based on the observation results and the data obtained, it can be concluded that students successfully demonstrated good skills in working together, communicating, and making collective decisions in group discussions. Observation of the four main indicators of collaboration skills—balanced speaking and listening, providing arguments, openness in listening to peers' opinions, and decision-making ability—yielded encouraging results. Almost all students showed good speaking and listening skills, creating a balanced and productive discussion atmosphere. Openness to differing opinions and the courage to provide arguments also appeared significantly, demonstrating tolerance and respect for others' views. Additionally, students' ability to make collective decisions in solving problems indicates the effectiveness of problem-based learning in enhancing compromising skills. The majority of students demonstrated good ability in this aspect of collaboration, with differences observed in the dynamics of discussions between small groups and the larger class. In small groups, students were more active and confident in giving their opinions, whereas in larger class discussions, some students tended to be passive. This phenomenon suggests that a more intimate and structured environment can enhance students' courage to speak. Overall, this study shows that problem-based learning not only develops students' academic skills but also important social skills such as

compromising, collaborating, and making collective decisions. Therefore, problem-based learning can be an effective approach to honing students' collaboration skills, which have a positive impact not only in academic contexts but also in their social lives.

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