Smart Puzzle Team Media
to Enhance Students' Collaborative Attitudes

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Abstract: Learning in elementary schools focuses on understanding the material and does not sufficiently involve collaborative student activities. Often, teachers present material that requires students to work in groups with their classmates, but this is unsuccessful. As a result, students' ability to cooperate and share roles is less than optimal. The solution provided by the researcher to overcome this problem is to use a learning medium called the Smart Puzzle Team. This research uses a descriptive qualitative method, which describes phenomena as they are scientifically by collecting data from interviews, observations, and collaborative attitude assessment sheets for students. This study aims to determine how the Deep Learning approach combined with the Smart Puzzle Team media, in this case, to shape students' collaborative attitudes, and what the results of the implementation are after using this media. The research results indicate that the integration between the deep learning approach and the Smart Puzzle Team learning media was successful in fostering students' collaborative attitudes at MI Al Fithrah Surabaya.
Keywords: Collaborative Attitude; Collaborative Learning; Deep Learning; Learning Media; Madrasah Ibtidaiyah; Qualitative Study; Smart Puzzle Team

INTRODUCTION

The beginning of the 21st century has been marked by the era of Industry 4.0, which is gradually leading to a more open era (Azriyanti, 2023). Currently, Indonesia is in a period considered to open up many job opportunities and produce intelligent and productive generations (Widiantie et al., 2025). This shows that humans are undergoing significant changes in the twenty-first century. requiring every aspect of high-quality human resources to be incorporated into life. In the modern era, there are inevitable changes that, if utilized well, have the potential to enhance educational outcomes (Aini, 2024).

This 21st-century learning also requires students to have good skills, in-depth knowledge, and be proficient in technology, media, and information, as well as possess varied learning skills (Nadia et al., 2024). Learning models also have an effect on current times, where everything is done to meet achievements that are in line with the times (Amalia & Surtikanti, 2024). Modern education not only provides students with information but also teaches them how to solve problems. developing learning skills appropriate for the modern era, for example, Mastery of 21st-century learning skills is expected to equip students to face global challenges (Risky, 2025). Technology-based learning has become a key feature of 21st-century education (Effendi & Elmunsyah, 2024) The 4C include: 1) Critical Thinking and Problem Solving, 2) Creative and Innovative Skills, and 4) Collaboration Skills (Junaidi, 2021).

One of the skills students must possess in the present era is the ability to think critically (Mutiara et al., 2024). According to Puig, a teacher's role in fostering students' critical thinking skills must be built and strengthened from an early age so that students can compete globally (Astra et al., 2024). In the best way, teachers involve students in a learning process. (Fatmawati et al., 2021) According to Robert Harianja, the critical thinking stage is the students' reflective thinking stage. This stage also fosters an individual's ability to review and generate arguments based on conclusions drawn from relevant evidence (Harianja et al., 2023). According to Akhidinirwanto, critical thinking skills are very important to cultivate in students at all levels (Akhidinirwanto, 2020). Pinta Dwi Lestari stated that with students' critical thinking skills, it greatly helps them easily solve problems (Lestari et al., 2024). According to Naurah Nazifah, creativity is a person's ability to discover things that did not exist before (Nazifah, 2022). Critical thinking skills in solving and handling a problem by connecting various pieces of information to each other, allowing for understanding and finding solutions to the problem. The ability to think innovatively and creatively, or individual ability, which means thinking in new and original ways, is defined as their ability to express all their ideas with a bold and unique approach. critical questioning and unusual critical approaches should promote active student engagement.. Communication skills, also known as individual skills, are defined as their capacity to express their ideas clearly in sentences that can promote active student engagement. Dwita Fitri stated that communication skills are a person's ability to summarize information well, correctly, and also use punctuation appropriately (A. D. Fitri, 2023).

The ability to convey messages clearly and understandably to others is crucial in today's era. Currently, collaboration skills, or the ability to collaborate, is a joint effort between individuals to support and complement each other (Nurhayati et al., 2024).

The role of teachers is considered very important in building students' 4C skills, and teachers must be able to facilitate relevant learning strategies. One example is that teachers can provide collaborative learning strategies, which involve students working together in groups to improve their work outcomes. Additionally, they have the ability to communicate with each other, have roles, and are responsible for shared goals (Fattah,

2025). According to the Great Indonesian Dictionary, "collaboration" is defined as cooperation to achieve a goal. In his study (Saifuddin, 2024). Karmila also stated that collaboration is bringing together various parties with common interests to achieve a shared vision, reaching an agreement on an issue, and identifying collaborative values to achieve an agreement that benefits all parties (Albafirda, 2025). Hermanto stated that improving the collaborative skills of every student in Indonesia can be achieved by providing training starting from school. In other words, if a teacher wants their students to have good collaboration skills, they need to start teaching them while they are still in school (Ristiarni et al., 2025). The position of collaboration is very important in achieving success and solving problems (Mahmudah et al., 2024). When students have these skills, they will be able to share their experiences, knowledge, and abilities with each other to find solutions to problems (Cristanti et al., 2024). This is because a collaborative attitude is highly related to a person's future ability when working (R. Fitri & Nasir, 2023).

Direct observation results from November 5th to 10th, 2025, show that first-grade students at MI Al Fithrah Surabaya. showing that their collaborative attitudes are still low. Students often find it difficult to socialize with their peers. They prefer to wait for instructions and explanations from the teacher rather than collaborate with their peers. The interview results also support the research. A first-grade homeroom teacher said that the collaborative skills of first-grade students are low. This may be due to adaptation factors during the transition from kindergarten or because students' social skills haven't developed well yet. It seems that some students prefer to work individually. Researchers are very concerned about the low level of collaborative attitude among these students. This is because cooperation is very important in modern learning.

Additionally, this issue is crucial because the education system in our country is regulated by Law No. 20 of 2003, which affirms that the purpose of education is to make students individuals who are faithful, of good character, creative, and independent. Thru the Merdeka Curriculum, the Ministry of Education, Culture, Research, and Technology emphasizes the importance of forming the Pancasila Student Profile, which is critical thinking, collaborative, and capable of working together (Suprayitno, 2020).

Researchers believe there are solutions that can foster collaborative attitudes among students at MI Al Fithrah Surabaya, which are currently low. The Deep Learning approach is a new solution that allows students to shift their learning patterns from simply memorizing to deep understanding. Deep learning encourages students to think critically, actively, and make connections between their knowledge and real-world situations (Uswatun Khasanah, 2025). According to Syafril, it is hoped that students will be able to connect information with their prior knowledge (Syafril, 2025). This approach is highly relevant because, in addition to fostering students' critical thinking skills, it also cultivates their creativity, collaboration, and communication skills (Nurtamam & Santosa, 2025). A learning media tool that can attract students' interest in group activities is needed to realize interactive and collaborative learning. Learning can use the Media Smart Puzzle Team. Because this media is not just ordinary media, but also a learning medium that can encourage students to work together in teams and solve problems. Students can also learn to communicate, share roles, and contribute to each other to complete this puzzle activity. It is hoped that with the presence of this Smart Puzzle Team learning media, students will be more interested in participating in activities with their peers. In her research, Indri Yuliani found that game-based learning media can improve students' collaborative skills and increase their willingness to participate (Yuliani et al., 2024). Students' social skills must be applied in learning because of the many social problems in daily life, with the goal of enabling students to develop social skills as members of society (Syamsudin, 2020).

This research is also supported by several previous studies, including: 1) The research results show that the project-based learning model is able to foster student collaboration in Pancasila education learning in class IV of Pandean Lamper State Elementary School 04 for the 2023/2024 academic year (Ruhmawati et al., 2024). 2) Success in building collaborative and creative attitudes is highly dependent on the support of the school and family environment (Issalillah et al., 2024). 3) The research results show that the Collaborative Learning Strategy method is able to increase the number of verses memorized by students (Badriyah, 2024). The novelty of this research lies in its learning approach, which uses the Deep Learning approach, and a learning medium to foster students' collaborative attitudes, namely the Smart Puzzle Team Media. Technology-based learning can provide benefits for increasing student participation in collaborating with their peers (Rini & Mandailina, 2024). The PJBL model, when combined with STEM, is able to improve students' collaborative attitudes and also produce a completed project (Ayu et al., 2024).

The objectives of this study are 1) to examine how Deep Learning affects students' conceptual understanding, 2) how Smart Puzzle Team helps students collaborate, and 3) the advantages and disadvantages of the Smart Puzzle Team learning media.

RESEARCH METHODS

This study uses a descriptive qualitative research approach. Descriptive qualitative research is the process of understanding and describing phenomena thru the development of stories and perspectives from informants (Fadli, 2021). Sugiyono states that qualitative research is a research method conducted in the natural conditions of the object (Norlaila,2025).

This study aims to improve students' collaborative attitudes at MI Al Fithrah Surabaya. The research location is at Jl. Kedinding Lor No. 99, Tanah Kali Kedinding, Kenjeran Village, Surabaya, East Java. The reason for choosing this research location is that it is very relevant and aligns with my findings that first-grade students at this school still lack collaboration skills, so something new needs to be implemented. This study involved 28 first-grade students who met the criteria of being 6-7 years old and still in the lower grades. The data source in this study is MI Al Fithrah Surabaya. In this study, observation sheets, interview sheets, collaboration questionnaires, and photo and video recording were also used. The data in this study came from first-grade teachers and students.

Data collection in this study followed the steps proposed by Miles and Huberman, which included three data collection processes: gathering interview data, observations, and collaborative attitude assessment sheets. Data presentation involved sorting and selecting data that focused solely on students' collaborative attitudes in the classroom. Data presentation began by describing the findings and drawing conclusions from them. (Ash-shiddiqi et al., 2025).

RESEARCH RESULT AND DISCUSSION

The observation results indicate that students' low collaborative attitude is caused by a lack of variety in learning media and approaches used to improve students' collaborative attitudes. Before the implementation of this learning media, students' attitudes were still low in terms of their ability to contribute with their peers. The results of this study indicate that after the implementation of the Smart Puzzle media, the team revealed that it had a demonstrates a positive contribution on the formation of students' collaborative attitudes at MI Al Fithrah

Surabaya. In general, this learning experience aims not only to provide an engaging and beneficial learning experience. However, it also fosters students' social attitudes toward their classmates. The learning approach known as deep learning is highly focused on our understanding of the learning process. The three principles of deep learning are mindful (awareness), meaningful, and joyful (Ariyati, 2025). Students not only know how to put the puzzle together correctly, but they are also able to connect information from the discussion sessions to various things. They are also capable of collaborating on analysis, experimentation, shared reflection and learning from mistakes.

This is also in line with the opinions of John Biggs and Catherine Tang, who also state that if students are involved in learning activities, problem-solving, making connections between concepts, and improving critical and reflective thinking skills, learning will become more meaningful. This method not only prioritizes students' ability to remember and memorize, but also encourages them to learn, apply, and evaluate together with their peers (Ridwan, 2025). Overall, in-depth education can help foster better thinking processes that align with the demands of 21st-century skills, such as critical thinking, creativity, communication, and collaboration (Yetti, n.d.). The study results indicate that utilizing the Smart Puzzle Team learning media can support the creation of activities requiring cooperation during the learning process. The roles were directly shared by the students, with some sticking puzzle pieces together, creating the puzzle layout, coloring, and attaching the pieces to the paper that would be assembled. At this point, it's very important for students to interact with their group members; this allows them to exchange ideas and listen to their friends' opinions on how to solve the puzzle.

Figure 1. Documentation of Students Assembling The Puzzle

Collaborating with others is something that is done not out of obligation, but rather, students feel interested and challenged to complete this puzzle-solving task. It can be emphasized that the Smart Puzzle Team learning tool is

proved effective because it helps students learn to cooperate with their peers. During the activity, a showed an increase increase in social interaction was observed. In this class, some students who are quite social or less visible are very active in group discussions. They shared ideas, offered criticism and suggestions, and corrected each other if they felt the puzzle arrangement was not quite right. Many students seemed highly motivated to complete the task, even feeling challenged to finish it quickly. This growing sense of challenge encourages students to actively speak with their group. This shows that the Smart Puzzle Team learning tool can encourage students to learn more. Vygotsky's theory also reinforces the idea that intelligence grows from social interaction, namely with peers, teachers, parents, and others. In this way, children will be able to develop and master higher mental functions, starting with learning correct language and critical thinking. Having the ability to solve problems easily. Vygotsky's theory is also known as sociocultural development theory (Wardani et al., 2023). The research findings show development in various collaborative attitudes.

The Deep Learning method is combined with the Smart Puzzle Team learning media. In line with the suitability of the independent curriculum, it emphasizes deep and meaningful learning, teamwork, and independence. The dimensions of the Pancasila student profile also support this, enabling them to work together and possess intelligent and creative thinking. This media indirectly has the ability to foster a high level of cooperation and social character, which aligns with the demands of education in this century (Aulia et al., 2024).

Figure 2. Documentation of Students Looking at Some Puzzles From Other Groups

The disadvantages of Smart Puzzle Team are as follows: 1) they take longer, 2) they are made of printed paper with different animal images. The advantages of this medium are: 1) it facilitates deeper learning, such as connecting pieces to form a perfect whole, 2) and it can develop social skills. According to this research, the Smart Puzzle Team and Deep Learning are effective learning methods for building cooperative and cognitive attitudes at MI Al Fithrah

Surabaya. Additionally, this aligns with the findings of previous research (Cahyaningtyas et al., 2024). Which found that puzzles can help students work better together on pantun material in Indonesian language lessons. The results of the completed questionnaire can be used to prove this. This research reinforces the findings of previous studies (Dinata et al., 2025) that implementing deep learning in learning management at Madrasah Ibtidaiyah has the findings indicate effectiveness in developing collaborative skills According to Miles and Huberman's theory, this includes four data collection processes: collecting interview data, the content of which is asking how well students are able to collaborate in learning activities and what media have been implemented in the classroom to improve students' collaborative attitudes. Observation shows that after implementing the Smart Puzzle Team learning media, students feel enthusiastic and are able to share roles with their peers. The collaborative attitude assessment sheet shows an increase from before the media was implemented to after the Smart Puzzle Team learning media was implemented. Data reduction involves selecting and choosing data that focuses only on students' collaborative attitudes in the classroom, and the researcher began to approach this. Data presentation begins with describing the findings and searching for relevant previous research. Finally, the researcher draws conclusions from the discussion of these findings.

CONCLUSION

The research results show that the application of smart puzzle learning media with a theme collaborated with a deep learning approach shows an increase and is very relevant if applied in lower grades.

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