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Utilization Of Board Game *Flofahunt* Media To Train Students' Critical Thinking Skills In Grade V Science Material At SDN 216 Sondariah, Bandung City

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Abstrak

FloFaHunt is an educational game-based learning media designed to integra biodiversity content—specifically Indonesian flora and fauna—with an activ and enjoyable learning approach. This study employed a mixed metho approach using a concurrent embedded design, combining quantitative ar qualitative data through critical thinking tests and student respons questionnaires. By implementing *the STAD-type cooperative learning mod with the FloFaHunt board game, the learning outcomes showed a significa improvement in students' critical thinking skills, with the average n-gain sco falling into the high category. Meanwhile, the qualitative data revealed th students responded positively to the learning process, particularly in terms engagement, enthusiasm, and conceptual understanding. These findin indicate that the use of the FloFaHunt board game is effective in fosterin critical thinking skills and active participation among elementary scho students in science and social studies (IPAS) learning.*

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1. INTRODUCTION

Critical thinking skills are one of the 21st-century skills that are very important in the learning process in elementary schools. These skills help students analyze, evaluate, and solve problems systematically. However, the results of studies show that students' critical thinking skills in Indonesia are still low, the majority of students (85%) have very low critical thinking skills and only 4% of students are in the high or very high category. One factor causing low critical thinking skills in students is teachers who still use conventional methods such as lectures, without involving students in the interactive learning process (Rofi'ah & Rokhmaniyah, 2024). The use of the lecture method as the main method in science learning is often ineffective, as evidenced by research conducted by Haris & Yamin (2019), where learning that only uses the lecture method makes students passive and uninterestedin the material presented.

During the learning process, students spend most of their time taking notes on the material presented by the teacher, which only develops their intellectual abilities (Miaz et al., 2019), thus diminishing their problem-solving abilities. This is reinforced by research by Wahyuni et al. (2022), which states that learning tends to use conventional methods, resulting in students being passive in participating in learning. These researchers suggest the use of media as an alternative to address the problem of student passivity in class.

Based on the problems above, this research was conducted to train the critical thinking skills of fifth grade students in science material by utilizing whiteboard media. *FloFaHunt* which has been developed previously. In the board *FloFaHunt* media, students actively play the role of adventurers who explore, discover, and formulate efforts to preserve flora and fauna, which is in line with the principles of constructivism. Learning media board *FloFaHunt* can be effective in

training students' critical thinking skills because it provides an interactive and meaningful learning experience (Hakim & Sukartiningsih, 2023). Furthermore, this media can also help raise awareness of sustainable development, such as realizing the idea of *Sustainable Development Goals*(SDGs) points 14 (ocean ecosystems) and 15 (land ecosystems).

Based on this description, the research results are expected to show positive changes in students' critical thinking skills, as assessed based on critical thinking indicators according to Ennis (2011). These indicators include providing simple explanations, building basic skills, drawing conclusions, providing further explanations, and organizing strategies and tactics within the context of science learning materials. Therefore, the use of whiteboard media *FloFaHunt* can be proven to contribute to improving students' critical thinking skills through active, fun, and meaningful learning.

2. RESEARCH METHODS

This research uses a mixed *methods research* approach *to* present the research results. Data were collected through tests and questionnaires conducted at SDN 216 Sondariah, Bandung City, with a sample of 25 students. This aimed to measure the effectiveness of the board of FloFaHunt in training students' critical thinking skills. Mixed methods, or mixed methods, is a research strategy that integrates quantitative and qualitative methods in a single study. The goal of this approach is to utilize the strengths of each method, thus producing a more comprehensive understanding.

Characteristics of the approach mix methods that is combining data from both approaches to provide a more complete picture, and qualitative data can be used to explain or deepen understanding of quantitative data, and vice versa (Azhari et al., 2023). In this study, the researcher used a descriptive design of *concurrent embedded* where quantitative and qualitative data are collected and then processed simultaneously to strengthen the results of the analysis that has been carried out, thus producing more valid and reliable data (Azhari et al., 2023).

3. RESEARCH RESULTS AND DISCUSSION

In its utilization, the use of whiteboard *FloFaHunt* learning media at SDN 216 Sondariah, Bandung City, implemented using the STAD type cooperative learning model*(Student Teams Achievement Division)*This activity is designed to increase student engagement in understanding the distribution of flora and fauna in Indonesia, while simultaneously training students' critical thinking skills. The implementation of the STAD cooperative learning model is integrated with whiteboard media of *FloFaHunt*, shows that students not only gain a cognitive understanding of the material, but also hone their collaboration, communication, and critical thinking skills in an active and enjoyable way. In the STAD model, students work in heterogeneous groups to understand the material and then take individual tests, which aligns with the structure of a board game. *FloFaHunt* where students move, answer question cards, and collect points based on their active contributions, ensuring individual accountability and team success (Slavin, 2006). This is in line with the research findings of Ghufron et al. (2023) which showed that STAD based on demonstrative learning media improves students' critical thinking skills.

After utilizing media in the learning process, an evaluation is then carried out to measure the effectiveness of using the whiteboard learning media of *FloFaHunt* towards training students' critical thinking skills. This evaluation is carried out by providing *pre-test* and *post-test* to all students who were the subjects of the research. The evaluation questions were in the form of 10 essay questions, designed to measure aspects of critical thinking skills of *Pre-test* given one day before the use of board media *FloFaHunt* as a form of initial measurement of students' critical thinking skills before receiving treatment (*treatment*). Meanwhile, *post-test* given one day after using the media, to find out changes or improvements in students' critical thinking skills after participating in learning using the media.

Result data *pre*-test and *post-test* then analyzed to see if there are any differences in values quantitatively using a test *n-gain score* as in table 1.

Table 1. Test Results *N-Gain* Mark *Pre-Test* and *Post-Test*

	Pre-test	*Post-test*	*Post-Pre*	Almost ideal	*N-gain Score*
Mean	78,8	26,4	52,4	73,6	0,7137

Referring to table 1, the average value-flat n-gain of 0.7137 is included in the high category (g>0.7) according to Hake's (1998) classification. This indicates that the media used provided a significant increase in understanding and was pedagogically relevant.

This finding is in line with the results of previous research conducted by Kolopita et al. (2022) in Inverted Journal of Information Technology Education which states that the use of educational media shows an increase-again>0.70, which is categorized as high. These results also confirm the effectiveness of the media in improving student learning outcomes. Furthermore, research related to the "Padlet ULIK" media by Agustini et al. (2024) also recorded a score of n-gain flat-average of 0.7053 (high category), with a significant increase in learning outcomes after-interactive media.

Conceptually, Hake (1998) states that n-gain is a measure of the extent to which class improvement approaches its maximum potential, and groups with an average gain of ≥0.7 are considered successful in transferring knowledge through interactive media. This strengthens the findings that the tested learning media is indeed effective. This means that the value of 0.7137 obtained is not only high numerically but also methodologically valid as an indicator of meaningful learning improvement.

To see the development of students' critical thinking skills more specifically, a recapitulation of the results was conducted based on five main indicators referring to Ennis's (2011) critical thinking theory. Each result from each indicator is based on the results of the pre-test and post-test to find out which indicators experienced the most significant improvement after the implementation of whiteboard learning media FloFaHunt. Here is the recapitulation of pre-test and post-test of Students based on Ennis' critical thinking indicators are summarized in table 2.

Table 2. Recapitulation *Pre-Test* and *Post-Test* based on Ennis' Critical Thinking Skills Indicators

Indicator	*Pre*	*Post*	*N-gain Score*	Category
Provide a simple explanation	0,72	0,9	0,874	High
Building basic skills	0,13	0,82	0,818	High

Conclude	0,07	0,71	0,709	High
Provide further explanation	0,04	0,73	0,729	High
Setting strategy and tactics	0,36	0,82	0,814	High

Referring to table 2, it shows a significant increase in all critical thinking indicators after students participated in learning using board game media of *FloFaHunt*. on the indicators "building basic skills", "concluding" and "providing further explanations", the value of *pre-test* is below 0.3 which means low according to the interpretation of *n-gain* Hake (1998), this shows that students still have difficulty in drawing conclusions and logically explaining the information they obtain. However, the results of *post-test*. The average scores for all three indicators increased drastically, reaching above 0.7, which is considered high. This improvement indicates that students have developed their analytical, inferential, and evaluation skills, which are core to critical thinking skills (Nufus & Agustin, 2023).

The highest improvement was seen in the indicators "building basic skills" and "providing further explanations", with a score difference of *pre-test* and *post-test* of 0.69. This indicates that the board media *FloFaHunt* effectively helps students understand basic information as a foundation for critical thinking, through group discussion activities and context-based challenges. This finding is supported by a study stating that game-based learning media can create an interactive and enjoyable learning environment, thereby encouraging the development of students' critical thinking aspects more evenly (Rosnawati, 2024). Similar results were also found in another study of *literature review by* Aqtoina et al. (2023), who concluded that educational game media has been proven effective in improving elementary school students' learning outcomes, including critical thinking and problem-solving aspects. Thus, the findings of table 2 strengthen the argument that the board media *FloFaHunt* not only fun, but also educationally valid to build students' critical thinking skills according to empirical evidence from previous research results.

In addition to the effectiveness of media use, to determine the level of student satisfaction with the use of blackboard media *FloFaHunt,* the researcher presents data on student satisfaction responses collected through a questionnaire. The following student response data is presented in Table 3.

Table 3. Recapitulation of Student Satisfaction Response Results Mode

Rated aspect	Modus	Category
Motivation to learn	3	What?
Student involvement	3	What?
Ease of media use	3	What?

Understanding the material	3	What?
The attraction and pleasure of learning	4	Very satisfied
Social skills (cooperation)	4	Very satisfied
Development of communication skills	3	What?

Based on the results of the questionnaire given to 25 fifth grade students of SDN 216 Sondariah, Bandung City, a general description was obtained as in Table 3, namely that the whiteboard learning media of *FloFaHunt* was very well received by students. Overall, the mode values that emerged ranged between 3 (Satisfied) and 4 (Very Satisfied). This indicates that the majority of students responded positively to the use of media in the learning process.

This result is in line with research by Aiman and Setyorini (2021) which found that media of *board game "The Company"* able to increase students' learning motivation through an interactive and fun approach. They stated that game educational tools designed with clear mechanisms and appropriate content can significantly increase students' interest in learning. These findings confirm the elements of fun and collaboration found in whiteboard media. *FloFaHunt became* an important factor in improving student learning outcomes.

In addition, Kaewpuang and Phayaphrom (2025) in a study of media development *board game* study for prospective social studies teachers found that the game approach was highly effective in increasing participant engagement and analytical skills. Students were not only emotionally engaged but also required to critically process information during the game. This aligns with the results on critical thinking aspects of the whiteboard media of *FloFaHunt*, where students not only play but also have to think, choose answers, and strategize to achieve the highest score. Thus, this medium fulfills its educational function holistically, encompassing affective, cognitive, and social aspects.

In conclusion, this media is able to create an active and enjoyable learning atmosphere, while also being intellectually challenging. The mode values in each aspect indicate that students not only accept this media well but also gain real benefits from its use in the learning process. Thus, it can be said that the board *FloFaHunt* has high utility as a learning medium in elementary schools, especially in strengthening motivation, cooperation, understanding concepts, and developing critical thinking skills.

4. CONCLUSION

Based on the results and discussion, it can be concluded that the whiteboard learning media of *FloFaHunt* effective in training the critical thinking skills of fifth-grade students at SDN 216 Sondariah, Bandung City. This is indicated by an increase in the average score of *pre-tests* the *post-test significant*, with a score *n-gain* of 0.7137, which is included in the high category according to Hake's classification. In addition, an increase also occurred in all critical thinking indicators according to Ennis, with a score of *n-gain* above 0.70 for all five indicators, namely providing simple explanations, building basic skills, concluding, providing further explanations, and organizing strategies and tactics.

Board media of *FloFaHunt* also received a positive response from students, with mode scores for seven assessment aspects ranging from "Satisfied" to "Very Satisfied." Students felt motivated, actively engaged, able to understand the material, and cognitively challenged

throughout the learning process. Thus, the board *FloFaHunt* not only supports the achievement of cognitive learning outcomes, but also strengthens students' social and affective skills in an active, collaborative, and meaningful learning context.

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