The Development of Puzzle Board Card Media to Enhance Students' Critical Thinking Skills in Science Learning

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ABSTRACT

Critical thinking ability is an essential skill possessed by elementary school students in the 21st century learning era. One tool that supports the development of this ability is puzzle card board media. This research aims to develop and test the effectiveness of this media in improving the critical thinking skills of fifth grade students in elementary schools. The research method applied is research and development (R&D) using the ADDIE research model which consists of the Analysis, Design, Development, Implementation and Evaluation stages. The product developed in this research is puzzle card board media which is adapted for science subjects, then its validity is tested by media experts and material experts, and distributed via questionnaires to teachers and class V students at SDIT Ummi Aida. The research subjects consisted of 29 class V students. The object of this research was the development of puzzle card board media. Based on the results of research and development, Through the use of puzzle card board media, students are involved in a series of experimental activities aimed at improving their critical thinking skills. Discussion activities carried out through puzzle card boards encourage collaboration and exchange of ideas between students. Students actively participate in learning activities. The puzzle card board media is considered to have positive and negative aspects during its use. The advantage of developing puzzle card board media is that puzzle card board media can direct students to think more actively critically.
Keywords: *Media, Critical Thinking*

ABSTRAK

Kemampuan berpikir kritis adalah sebuah keterampilan esensial yang dimiliki oleh siswa sekolah dasar dalam era pembelajaran abad ke-21. Salah satu alat yang mendukung perkembangan kemampuan ini adalah media papan puzzle card. Penelitian ini bertujuan untuk mengembangkan dan menguji keefektifan media tersebut dalam meningkatkan kemampuan berpikir kritis siswa kelas V di sekolah dasar. Metode penelitian yang diterapkan adalah research and development (R&D) dengan menggunakan model penelitian ADDIE yang terdiri dari tahapan Analysis, Design, Development, Implementation, dan Evaluation. Produk yang dikembangkan dalam penelitian ini adalah media papan puzzle card yang disesuaikan untuk mata pelajaran IPA, kemudian diuji kevalidannya oleh para ahli media dan ahli materi, serta disebarluaskan melalui kuesioner kepada guru dan siswa kelas V di SDIT Ummi Aida. Subjek penelitian terdiri dari 29 siswa kelas V. objek penelitian ini adalah pengembangan media papan *puzzle card*. Melalui penggunaan media papan

puzzle card, peserta didik terlibat dalam serangkaian aktivitas eksperimental yang bertujuan meningkatkan kemampuan berpikir kritis mereka. Kegiatan diskusi yang dijalankan melalui media papan puzzle card mendorong kolaborasi dan pertukaran ide di antara peserta didik. Peserta didik berpartisipasi aktif dalam kegiatan pembelajaran, Media papan puzzle card dinilai memiliki aspek positif dan negatif selama penggunaannya. Adapun kelebihan dari pengembangan media papan puzzle card ialah media papan puzzle card dapat mengarahkan peserta didik untuk lebih aktif berpikir kritis.

Kata Kunci: Media, Berpikir Kritis

INTRODUCTION

Critical thinking ability is one of the main competencies that students must have in this modern era. In the context of learning Natural Sciences (Science), critical thinking skills are very important to help students understand scientific concepts, analyze data, and solve problems. However, in reality many students still experience difficulties in developing their critical thinking skills. This can be caused by less varied learning methods and a lack of learning media that is able to stimulate students' critical thinking abilities.

One solution that can be applied to overcome this problem is to develop innovative and interactive learning media. Effective learning media not only conveys material, but must also be able to stimulate interest in learning and develop students' critical thinking skills. One potential medium is puzzle card board media. This media combines game elements with learning materials, so that it can make the learning process more interesting and fun. Puzzle card boards as a learning medium have several advantages. First, this media can increase students' active participation in the learning process. Students are invited to interact directly with the material through puzzle games, which require them to think critically and solve problems. Second, this media can help students understand science concepts in more depth. Through the activity of putting together puzzles, students can see the relationship between the concepts being taught, so that their understanding becomes more comprehensive.

Education in the 21st century encompasses several important skills and competencies for learners, including the ability to think critically, especially when applied in problem-solving contexts (Purba et al., 2023). Critical thinking is one of the lifelong learning skills that students need to make logical decisions through high-quality intellectual processes in various fields (Hasairin et al., 2023). (Ennis, 2011) Stating that critical thinking involves a logical and comprehensive thinking process used to determine appropriate actions. Critical thinking is one of the 21st-century learning skills essential in preparing students to tackle global challenges (Prasasti & Anas, 2023) (Hasibuan & Prastowo, 2019). Critical thinking can encourage students to come up with new ideas (Yusnaldi et al., 2023). Through the skill of critical thinking, students can make logical decisions with a high-quality intellectual process. The aim of critical thinking skills is to assist in problem-solving and drawing conclusions that can be recognized as true (Harahap et al., 2021). Critical thinking is also a higher level reasoning ability (Manurung et al., 2023). Reasoning skills from critical thinking can train students to think in a structured manner (Puspita & Dewi, 2021). Based on several opinions above, it is concluded that critical thinking is the process of effectively using thinking skills to assist individuals in

problem-solving, decision-making, evaluating, and acting in line with their beliefs and actions appropriately and systematically. In learning, especially in science subjects which contain scientific knowledge with indicators that require critical thinking skills such as understanding, analyzing, identifying, explaining, and applying.

Although problem-solving ability through critical thinking is considered a key factor, most students still exhibit weaknesses in this area. Interview results indicate that many students have not yet reached the expected level of critical thinking skills. The contributing factors lie in the limited one-way teaching approach and the lack of utilization and development of learning media (Kamila & Sukartono, 2023). As a result, students are less actively engaged in the thinking process and face difficulties in problem-solving. The reasoning aspect is included in the category of high thinking abilities (Raradhita et al., 2022), while the understanding aspect is included in the basic ability category (Raradhita et al., 2022). Meanwhile, the understanding aspect includes basic abilities (Prasandha & Utomo, 2022). The information provided by the research findings of both international institutions holds significant value in efforts to enhance the quality of science education. Currently, the focus of education largely emphasizes knowledge acquisition, leading to a lack of practice for students in developing critical thinking skills to address issues. Therefore, it can be concluded that the critical thinking abilities of Indonesian students are still not optimal. Critical thinking assists students in obtaining cognitive stimulation, involving activities such as systematically and thoroughly analyzing concepts, discerning concepts comprehensively, and using logic and evidence to discover, learn, and enhance the process of thinking (Prihono & Khasanah, 2020).

Based on the initial test results, it is clear that students' critical thinking abilities are still low, as shown by the test score which is below the Minimum Completeness Criteria (KKM), namely 75. This is thought to be caused by the learning method which is still dominated by lectures and question and answer sessions. which causes a lack of enthusiasm among students. Critical thinking abilities can be measured through several main indicators, namely analysis, evaluation, inference, explanation and meta-cognition. Analysis involves the ability to identify and clarify a problem or argument, and break it down into smaller parts that can be understood. Evaluation includes assessing the credibility of information sources and the validity of arguments based on evidence and logic. Inference is the ability to draw logical conclusions from available information and make predictions based on existing evidence. Explanation involves the ability to communicate findings, explain the reasons behind decisions, and discuss the methods used to reach conclusions. Meta-cognition, or awareness of one's own thought processes, including planning, monitoring, and evaluating the results of thoughts.

Factors that influence critical thinking skills include learning methods, learning media, learning environment, availability of learning resources, and teacher involvement. Monotonous lecture and question and answer methods can hinder the development of critical thinking because they do not involve students in the active learning process. The use of learning media that is less varied and does not support direct experimentation can make students only focus on theory. A supportive learning environment, both physical and psychological, is essential for developing critical thinking. The availability of a variety of

learning resources, including books, journals, and access to the internet, can help students search for additional information and deepen their understanding of a topic. The teacher's active role in guiding, providing constructive feedback, and motivating students is very important in developing critical thinking skills. Teachers must be able to create a classroom atmosphere that encourages open dialogue and critical thinking.

By paying attention to these indicators and factors, it is hoped that the science learning process can be designed in such a way as to improve students' critical thinking abilities. One effort that can be made is to develop and apply innovative learning media such as card puzzle boards, which are not only interesting but also effective in stimulating critical thinking through experimental activities and direct observation.

Science learning is described as contextual learning because it is closely related to the context of everyday life (Primayana et al., 2019). In the classroom, science learning emphasizes the use of experiments as a means to connect students' prior knowledge with the material to be learned (Aufa et al., 2023). The science learning process is expected to provide experience for students (Astiti et al., 2021). The experience in question is a meaningful experience that can be applied in everyday life (Cantona & Sudarma, 2020). Over time, the rapid advancement of science and technology demands a high level of creativity and motivation to continually update teaching methods (Rahmawati & Dahlan, 2023). Teachers, as facilitators, are required to be able to operate the available media in schools. In the same context, educators are also expected to enhance their skills in creating various learning media to be used in the teaching process (Octaviani, 2021).

Media refers to communication tools, both in written and audiovisual forms, that allow manipulation, viewing, listening, and reading by its users (Puspita et al., 2023). Learning media is anything used by educators involving the five senses during the teaching process to achieve learning objectives (Rambe et al., 2021). The learning media used must be in line with the stages and characteristics required for the learning process, including the goals of the learning process itself (Rambe & Putri, 2023). As an alternative to enhance the Natural Sciences learning process, one approach utilized is leveraging various engaging learning media, one of which is puzzle media. This puzzle media consists of challenging pieces of images or texts, aiding in enhancing critical thinking, patience, teamwork, and concentration (Purwaningrum & Iftitah, 2023). When utilizing puzzle media, critical thinking skills are focused on several skill aspects, including: 1) Problem formulation skills, 2) Evaluation skills, and 3) Sensitivity to issues. Critical thinking skills play a significant role for students because they enable them to address the challenges they face (Dian Oktaviani et al., 2023).

The application of critical thinking in science learning plays a vital role in minimizing the likelihood of errors when solving problems, thus leading to accurate conclusions. There are several indicators that need to be observed and enhanced in the development of critical thinking. According to (Septiany et al., 2024), Indicators of critical thinking include: 1) Focused questioning, 2) Analyzing arguments, 3) Considering the credibility of sources, 4) Formulating and considering inductions, 5) Identifying terms and considering definitions, and 6) Determining a course of action. Meanwhile, according to (Ramdani et al., 2020), There are

several indicators that refer to critical thinking, including: 1) Providing simple explanations, 2) Presenting deeper explanations, 3) Developing fundamental skills, 4) Analyzing data, and 5) Identifying assumptions and seeking alternative solutions. In the context of this research, these indicators will be the focus for analysis and evaluation, namely: 1) Providing simple explanations by analyzing arguments, 2) Building fundamental skills by reporting experimental results, 3) Drawing conclusions by summarizing findings, 4) Providing further explanations by addressing contextual questions, and 5) Strategizing and tactics by offering problem-based solutions.

Many studies related to the use of puzzle media have been carried out, including by (Febyani & Wardhani, 2020), shows that the use of puzzle media gets a positive response from students, puzzle media is worth using because it can increase students' learning motivation. The results of research conducted by (Purwanti & Khotimah, 2020), shows that there is an increase in students' interest in reading by using Make A Match-Based Puzzle media, with an average score assessment in the high category. Different from previous research conducted by (Syarif et al., 2022), revealed that learning was effective using puzzle media and augmented reality only in small groups.

Although the use of puzzle media is common, its utilization in science learning to enhance students' critical thinking skills remains relatively minimal. One potential type of puzzle media for developing students' critical thinking skills is the puzzle board card media. This media consists of a combination of text, images, and concrete objects. This study explores the development of puzzle board card media as a learning tool in the context of science subjects. In this research, learning is conducted through the use of puzzle board card media, which includes text, images, and concrete objects. This is expected to inspire and engage students, ensuring that learning aligns with the desired objectives. This issue is identified as significant to research because based on the initial tests conducted by the researcher in elementary schools, the use of puzzle board card media has not been applied. The previous learning process relied solely on verbal material delivery without considering the use of media that could enhance student interest and motivation. The development of this media is expected to provide a clear representation of the concepts taught to students, thus enabling them to better understand the material.

METHODS

Type and Design

The research method employed in this study is Research and Development (R&D), which aims to create or enhance a product to be tested for its effectiveness. R&D (Research and Development) research methodology is a systematic approach used to create and develop new products, services or processes and test their effectiveness. In an educational context, this methodology is often used to develop innovative learning tools, methods or programs (Salim & Haidir, 2019). Data collection in R&D (Research and Development) research is a crucial stage that involves several methods to obtain accurate and relevant information. This stage begins with identifying problems and needs through various techniques such as interviews, surveys,

observations, and focus group discussions. In this initial phase, researchers collect data to understand the context and determine the main focus of the research. After that, in the prototype development stage, data was collected through initial trials with small groups. Data collected at this stage typically includes user feedback, initial effectiveness of the product, as well as weaknesses and areas that need improvement. The product created in this study is a puzzle board card media. The development process of this media follows a development model based on the ADDIE research model, adapted from Branch's theory modified by Sugiyono. In the implementation of the R&D ADDIE model, several steps are outlined in the following diagram:
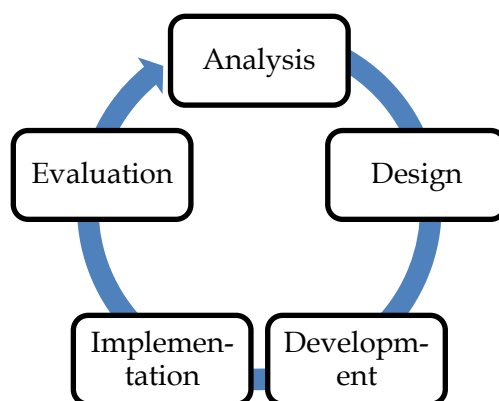

Figure 1**.** ADDIE model R&D application steps

Robert Maribe Branch advocates for the ADDIE approach in instructional design, which stands for Analysis, Design, Development, Implementation, and Evaluation. The Analysis phase focuses on analyzing the work situation and environment to determine the products that need to be developed. The Design phase involves designing products that meet the requirements. Development is the stage of product creation and testing. Implementation is the stage of product application, while Evaluation is the stage of assessing the suitability of each step and product with its specifications (Sugiyono, 2015).

Data and Data Sources

Various data collection tools were utilized in this research, including interviews, validation sheets, critical thinking tests, and questionnaires to assess the responses from teachers and students. 1) Interviews were conducted to obtain necessary information in developing instructional media. The information sought included subject matter, the curriculum used, and common issues or challenges encountered in science learning. 2) Validation sheets were provided to media experts and subject matter specialists to assess the validity of the developed product. Feedback from these validation sheets was utilized to refine the puzzle card media to meet the standards for field testing. 3) Critical thinking tests were administered to evaluate the effectiveness of the puzzle card media. 4) Teacher and student response questionnaires were utilized to assess the suitability and usability of the media, based on the feedback provided by teachers and students on the questionnaire sheets.

Data analysis

Data analysis in this research consisted of several stages. The first stage involved collecting qualitative data through observations and interviews with teachers and students during trials

of the puzzle card board media. The goal is to understand students' interactions with media, responses to learning activities, and emerging critical thinking skills. Interview data were analyzed to identify key themes related to experiences and perceptions of media use. The second stage involves collecting quantitative data through pretest and posttest before and after media use. This data was analyzed statistically to measure the increase in students' critical thinking skills, using statistical tests such as the paired sample t test to determine the significance of the differences. Furthermore, data analysis includes triangulation, namely combining qualitative and quantitative data to ensure the validity and reliability of the findings. Triangulation is carried out by comparing the results of observations, interviews and tests. To estimate the results of the questionnaire assessment in percentage terms, predetermined calculations will be used. To formulate the questionnaire assessment results as a percentage, a predetermined calculation formula will be used:

$$\text{Value Calculation:} \quad P(s) = \frac{f}{n} \times 100$$

Then, the average score value will be interpreted based on the validity level categories presented in table 1, as explained below:

Table 1. Validity Level Category

No	Average Score %	Criteria
1	76% - 100%	Valid (very suitable for use)
2	56% - 75%	Valid enough (fit for use)
3	40% - 55%	Less Invalid (less suitable for use)
4	0% - 39%	Invalid (not suitable for use)

The questionnaire given to teachers and students to measure the practicality of the puzzle card board media was calculated using a formula:

$$\text{Value Calculation:} \quad P(s) = \frac{f}{n} \times 100$$

The average score is interpreted based on the practicality level categories presented in table 2, as follows:

Table 2. Practicality Level Category

No	Average Score %	Criteria
1	76% - 100%	Practical
2	56% - 75%	Quite Practical
3	40% - 55%	Less Practical
4	0% - 39%	Not practical

(Badariyah, 2022)

Critical thinking test analysis is calculated using a formula:

$$\text{Value} = \frac{score\ is\ obtained}{maximum\ score} \times 100$$

The results of the critical thinking test are calculated to see the increase in effectiveness with N-gain using the formula:

$$G = \frac{post - pre}{G\max - pre}$$

The average results obtained after searching using the gain formula are then interpreted based on the N-gain level criteria presented in table 3, as follows:

Table 3. Level Criteria *N-gain* (*g*)

G	Criteria
g > 0,7	Tall
0,3 ≤ g ≤ 0,7	Medium
g < 0,3	Low

RESULTS AND DISCUSSION

This research yielded data regarding validity with the aim of evaluating the extent to which the developed media is suitable for use. The validity analysis results indicate the following: (1) In the validity analysis conducted by media experts, the puzzle card media obtained a score of 93.7%, which aligns with the criteria used in this study, placing it in the valid or highly suitable category for use. Thus, this media can be used without requiring further refinement. (2) In the content validity analysis, the puzzle card media scored 90.6%, with a range of scores between 76% to 100%. This score also meets the assessment criteria used in this study, indicating that the media falls into the valid or highly suitable category for use without requiring content refinement.

In terms of media effectiveness, the puzzle card media obtained an average pre-test score of 58, which falls into the category of moderately effective. Meanwhile, the average post-test score was 82, placing it in the highly effective category, with a score range between 76% to 100%. These results align with the assessment criteria used in this study. The average results obtained are interpreted based on the N-gain level, with a value of 57%. This score falls into the moderate category based on the assessment criteria in this study. From these data results, it can be concluded that the use of puzzle card media is effective in enhancing the critical thinking abilities of students at SDIT Ummi Aida, especially at the 5th-grade level.

In terms of data analysis regarding the practicality of media usage, the puzzle card media received a score of 98.6% from teacher responses, classified as practical. Obtaining a score of 86.7% from student responses also falls into the practical category. Based on these response results, it can be said that the puzzle card media is practical for use in enhancing the critical thinking abilities of students at SDIT Ummi Aida, particularly at the 5th-grade level.

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Picture 2. Puzzle Card Board Media Display
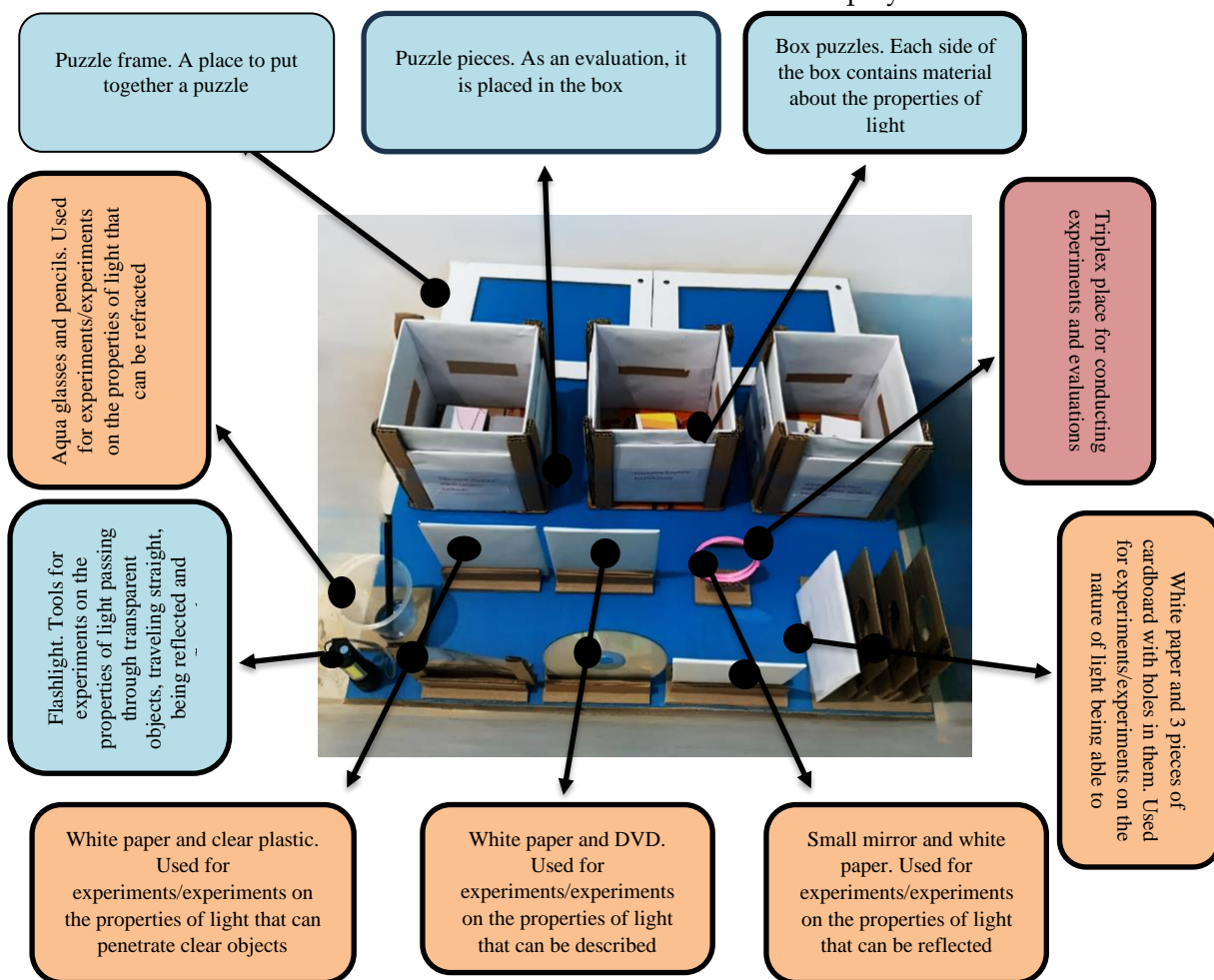
The following is an explanation based on the puzzle card board media image above: The puzzle frame functions as a place to arrange the puzzle pieces. This frame helps students place the pieces in the correct position according to the picture or material being studied. These puzzle pieces are used as an evaluation tool, where each piece contains questions or information that must be placed in the puzzle box, so students must arrange the pieces correctly to complete the evaluation. The box puzzle itself is a box where each side contains

material about the properties of light, providing important information and helping in the learning process by presenting the main concepts visually and interactively. Plywood is used as a board for conducting experiments and evaluations, providing a stable and sturdy surface for various scientific experiments related to the properties of light.

For experiments on the nature of light, several special devices are used. White paper and three pieces of cardboard with holes in them are used to observe the properties of light that propagate in a straight line, where students can see how light moves in a straight line through the holes in the box and forms certain patterns on the white paper. Small mirrors and white paper are used for experiments on the reflected properties of light, where students use mirrors to reflect light from a flashlight or other light source and observe the reflection on white paper. White paper and DVDs were used for experiments regarding the nature of light that can be described, using DVDs to see the spectrum of light described on white paper, showing how white light consists of various colors. White paper and clear plastic are used for experiments regarding the properties of light that can penetrate clear objects, where students observe how light passes through clear plastic and forms certain patterns on white paper. Flashlights are used as the main tool in various experiments on the properties of light, including observing how light travels in a straight line, is broken down, reflected, and passes through transparent objects. Finally, the aqua glass and pencil were used for an experiment on the refractive properties of light, where students placed a pencil in a glass filled with water and observed changes in the appearance of the pencil, showing how light bends when passing through different media.

The first stage of this research is analysis. In this stage, the researcher conducts observations and interviews to evaluate the needs and characteristics of the students, as well as analyzing the role of teachers as educators. In analyzing the needs and characteristics of the students, it was found that they have a lack of interest in the learning process, difficulty in understanding concepts taught by teachers, and deficiencies in mastering science subjects. They also require learning media other than printed books to assist them in better understanding the lesson materialsMeanwhile, the analysis of the teacher's role indicates that the use of instructional media can be an effective tool to assist teachers in delivering lesson materials. After evaluating the needs of students and teachers, the next step is to analyze the lesson procedures and learning objectives to ensure that the teaching-learning process can proceed effectively and efficiently. The analysis of lesson procedures involves evaluating the initial competencies and learning objectives in the science subject regarding the properties of Light. As a learning aid in science lessons on the properties of Light, the researcher developed puzzle board cards designed to assist both teachers and students.

The next step is carried out in the design stage or product design. In this stage, product design is conducted. The author first develops assessment instruments, such as essay tests to measure critical thinking skills, validation instruments by media experts and subject matter experts, as well as questionnaires for responses from teachers and students. This aims to enhance critical thinking skills by utilizing puzzle board card media..

Next, the development stage or product creation and testing activities are conducted, which involve several development steps. The initial step involves the researcher gathering references to support the research and development process related to puzzle media theory. These references are sourced from various relevant books and articles. The next step is product

design, which includes designing the media interface and media content. After that, validation is carried out by designated experts, namely media experts and subject matter experts, on the designed media. Validation of the content and puzzle board card media is conducted by lecturers from the Faculty of Education and Teacher Training at UINSU. This validation stage aims to assess the feasibility of the developed media.

The next step is implementation or the product usage stage. In this stage, the completed media will be implemented in the learning process of fifth-grade students at SDIT Ummi Aida, consisting of 29 students. After the learning session, both teachers and students are asked to fill out response questionnaires. The results of these questionnaires aim to evaluate the practicality and effectiveness of the media in learning.

The final stage is evaluation, which is the process of assessing whether the developed learning system has succeeded according to the initial expectations or not. This evaluation stage does not have specific steps because each stage in the ADDIE model includes evaluation and revision as needed.

Utilizing puzzle board card media in elementary science learning can enhance students' critical thinking skills. As facilitators, teachers play an active and creative role in harnessing this media to create engaging and enjoyable learning experiences. Consequently, puzzle board card media becomes a tool that successfully captures students' interest and reinforces critical thinking abilities, especially in the context of science learning.

Puzzles also assist teachers in optimizing the use of time and energy while enhancing students' learning abilities. (Hafidhatul Husna, 2021). The benefit of instructional media for teachers is that it aids them in delivering materials to students (Widyardi et al., 2023). The use of Puzzle Media holds significant potential in learning by aiming to train the concentration of students in deep thinking. By combining visual elements and text within puzzle pieces, this media can enhance the understanding of concepts taught to students (Muttaqin et al., 2021).

The puzzle board card media product utilized by the author employs readily accessible materials and presents an engaging interface for students. The content focuses on the properties of light within the science subject. This content requires students to conduct experiments to validate the theories learned about light properties. Through the use of puzzle board card media, students engage in a series of experimental activities aimed at enhancing their critical thinking skills. Discussion activities conducted via the puzzle board card media encourage collaboration and exchange of ideas among students. The critical thinking learning process involves exercises in pattern recognition, theory formulation, hypothesis testing, and evidence gathering. Puzzle board card media plays a vital role in stimulating the interest and active participation of students in the learning process. More than mere entertainment, puzzle board card media plays a crucial role as an effective educational tool to facilitate the learning and teaching process for students.

Penelitian tentang pengembangan media papan puzzle card dalam meningkatkan kemampuan berpikir kritis peserta didik dalam pembelajaran IPA memiliki signifikansi yang penting. Melalui proses penelitian ini, siswa secara aktif terlibat dalam kegiatan pembelajaran yang menggunakan media tersebut. Evaluasi terhadap media kartu puzzle board dilakukan untuk menilai kelebihan dan kekurangannya selama pengoperasian. Salah satu kelebihan yang ditemukan adalah media ini dapat mendorong siswa untuk berpikir kritis secara lebih aktif, yang merupakan aspek penting dalam pembelajaran. Namun, terdapat juga kekurangan,

seperti keterbatasan dalam mencakup topik dan kemampuan beberapa siswa untuk belajar secara efektif melalui gaya visual. Oleh karena itu, penelitian ini menekankan pentingnya pengembangan lebih lanjut terhadap media kartu puzzle board guna meningkatkan efektivitasnya dalam mendukung pembelajaran berpikir kritis, serta memperluas cakupan topik yang disajikan agar dapat mengakomodasi kebutuhan belajar dari berbagai macam siswa.

CONCLUSION

The use of puzzle board media has great potential in improving students' critical thinking skills. Through this research, we can see that students are actively involved in the learning process using puzzle board card media. Evaluation of this media shows that although it has advantages in directing students to think more actively critically, there are also disadvantages such as limitations in covering topics and transmitting some students to learn effectively through a visual style. The suitability of the puzzle card board media was assessed by media experts with a score of 93.7% and material experts with a score of 90.6%, which places it in the very valid or very suitable for use category. Thus, this puzzle card board media is considered relevant and suitable for use in this research. Apart from that, positive responses were also obtained from teachers with a score of 98.6% and from students with an average score of 86.7%, indicating that this media is practical and effective in improving elementary school students' critical thinking skills.

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