



DEVELOPMENT OF QUARTET CARD MEDIA IN SCIENCE LEARNING IN GRADE V OF SDS BINA SATRIA MULIA

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ARTICLE INFO	ABSTRACT
Article History Receive: 24 - 06 - 2025 Revision: 12 - 09 - 2025 Accept: 30 - 10 - 2025	This research is a development research (<i>Research and Development</i>) using the ADDIE model which consists of the stages of <i>Analysis, Design, Development, Implementation, and Evaluation</i> . However, this research only reaches the <i>Implementation stage</i> . (1) The <i>Analysis stage</i> includes analysis of student needs, student characteristics, and curriculum analysis. (2) The <i>Design stage</i> is the stage of designing quartet card media, starting from the preparation of material design to research instruments. (3) The <i>Development stage</i> includes media validation by material experts, language experts and design experts to ensure product validity. (4) The <i>Implementation stage</i> is a trial of the use of quartet card media in class V of SDS Bina Satria Mulia, which involves teacher and student responses to the practicality of the media. This study produced a learning media product in the form of quartet cards that have gone through a validation process and practicality test. The validation results from material experts showed a validity level of 88% (<i>very valid</i>), language experts 98% (<i>valid</i>) and media design experts 96% (<i>very valid</i>). The results of the practicality test by the teacher obtained a score of 100% (<i>very practical</i>), while the student response reached 96% (<i>very practical</i>). Thus, the developed quartet card media is suitable for use as an aid in science learning, especially in understanding the water cycle in grade V of elementary school.
Keywords	Media Development, Quartet Cards, ADDIE, Science Learning

1. INTRODUCTION

Education is everything that affects the growth, change and condition of every human being. The changes that occur are the development of students' potential, both knowledge, skills, and attitudes in their lives. Education continues to develop rapidly with various new trends and innovations. The formal education process is realized in learning activities at school. To achieve a certain goal,

learning needs to be done through quality learning activities. Good learning outcomes can be achieved through various ways and several factors that work together with each other.

One of the important factors in learning activities is the use of media. According to (Dian Nur Septiyawati Putri et al., 2022). Saying that through learning media, teachers can easily convey material in a simple and easy-to-understand way. The use of media in learning

can have a positive impact and extraordinary benefits in facilitating the student learning process. Students can feel happy in the learning process, so the material delivered by the teacher can be well received by students with the help of this learning media. In addition, learning media is a very necessary basis that is complementary and is an integral part for the success of the learning process. Media can also stimulate student learning activities and can attract students' attention as a result of which it can enhance students' learning experiences exclusively which can enhance student learning outcomes.

(Yolviansyah et al., 2021) States learning outcomes are the abilities possessed by students after they receive learning experiences in the learning process. Which, this change can be seen from the behavior and abilities of students after learning which are in the form of cognitive, affective, and psychomotor abilities caused by experiences in the learning process. Therefore, students in learning must have more concrete experiences so that they do not misperceive in understanding the lessons delivered by the teacher. One way for students to have concrete experiences in the teaching and learning process is by using learning media.

According to (Fadilah et al., 2023) Learning media is a tool that can be used to help the learning process to be more effective and optimal. At this time the learning process is not only limited to books and blackboards, because currently there are many learning media that can be used by teachers.

(Dian Nur Septiyawati Putri, Fitriah Islamiah, Tyara Andini, 2022) Say that learning media can be interpreted as a learning aid, namely anything that can be used to stimulate students' thoughts, emotions, attention, skills, or abilities to improve the learning process. And according to (Kustandi et al., 2021) media makes it easier for students to improve their memory of the material.

From the definition above, the author concludes that this shows that learning media can help students understand the material and has advantages that can facilitate students' understanding.

According to (Nurfadhillah et al., 2021) , "the use of media in the teaching and learning process can arouse new desires and interests, arouse motivation and stimulation of learning activities, and even have a psychological effect on students. The application of learning media will trigger a more enjoyable learning atmosphere". So that students do more learning activities, because they not only listen to the teacher's explanation, but also other activities such as observing, doing and demonstrating.

The influence of using learning media in education facilitates the teaching and learning process of students and teachers, which can increase student learning motivation, because teaching materials using learning media will attract more attention from students. teaching materials will have clearer meaning so that they are better understood by students and allow students to master the objectives of the teaching materials. Learning methods are more varied, not only with verbal communication through the delivery of spoken words, and students do not feel bored in learning and also make teachers not run out of energy in delivering teaching materials because the implementation time in learning can be shortened, which means that the length of learning time required can be shortened because most media only require a short time to deliver messages and lesson content in sufficient quantities but can be absorbed by students well.

Science is theoretical knowledge that is obtained/organized in a unique/special way, namely conducting observations, experiments, conclusions, theory development, experiments, observations and so on, linking one method to another (Prasetyaningtyas, 2020) . Elementary school science should provide opportunities to foster children's natural curiosity. Through this, it can help them develop their abilities (Karo-Karo & Saragih, 2023)

(Yolviansyah et al., 2021) said that Natural and Social Sciences (IPAS) is a science that studies living things and inanimate objects in the universe and their interactions, and studies human life as individuals as well as social beings who interact with their environment.

From the three definitions above, the author conveys that through science learning,

students are able to observe the observation process through the five senses, students are able to explain the meaning of an event/incident, or the results of observations.

The Concrete Operational Stage is the third stage in Piaget's Theory of Cognitive Development that occurs in children aged 7–11 years. At this stage, children begin to think logically and concretely, showing some abilities, solve problems, objects and events, although still limited to concrete or real things. This shows that students will easily accept the material if there are real objects or visualized objects. One solution that can help teachers in delivering science subject matter is to use learning media to replace concrete objects in the classroom.

During the learning process of Natural and Social Sciences (IPAS) material, many elementary school students experience difficulties due to the lack of supporting media in the learning process. While at this time many teachers are unable to create learning media that can increase student learning motivation. So that the learning process feels boring and less effective. Based on observations and interviews conducted on December 23, 2024 with a fifth grade teacher of SDS Bina Satria Mulia, the researcher found that one of the problems in the science learning process is that the learning media used is not varied and less effective. In learning, the media used only contains a lot of writing, videos and some pictures so that it has a boring and monotonous impression. Learning books with less attractive displays cause students to be unmotivated to read and understand the material.

The learning conditions of the subject of science on the material of the water cycle and its impact on animals and plants, which are in SDS Bina Satria Mulia are currently still mostly done conventionally, namely by the lecture method and the lack of learning media used makes students experience boredom if they always do monotonous activities. Science learning is usually only centered on the teacher and still emphasizes mastery of the material so that the learning atmosphere is one-way. One-way learning does not provide opportunities for students to learn actively in expressing their opinions or ideas. Science subjects are still

abstract and the process of learning science at SDS Bina Satri Mulia is still memorization rather than thinking, resulting in students assuming that science subjects are just memorization subjects, where students are only required to memorize and take notes. Students will find it difficult to memorize abstract material without other learning that can make the material concrete. This causes students to be less interested in the subject of science.

Therefore, it is necessary to develop a learning media that has a more interesting concept that can concretize abstract material, namely by using the quartet card media for learning science. Quartet card media is a type of game card that contains interesting images, text, and their combinations that are used to guide students in learning and activate students in learning. A fun learning strategy is a strategy used to create an effective learning environment, implement the curriculum, deliver materials and facilitate the learning process.

The personality of the learner must be taken into account when deciding on the most effective form of educational media. In general, elementary school children still have an interest in games, physical activity, group work, and a preference for hands-on learning. According to (Harlin & Arini, 2023), learning media that can increase student interest and can involve students in mathematics learning is using game media. Game media will create a fun and exciting atmosphere and can support the achievement of a learning process. The appropriate learning media to use is learning media in the form of cards that will be developed into Quartet Cards. Choosing quartet card media as a development of learning media on the Water Cycle material because this media has several advantages, including, quartet card media is packaged in the form of a fun game, allows for active participation and direct feedback from students, this media is effective and interesting in learning, this media is practical and flexible to carry anywhere so that it is easy to carry anywhere by students. In addition, quartet card media can be played by students without teacher supervision.

Based on the problem identification above, so that the problem is focused and

targeted, the problem limitation of this study is: "Development of Quartet Card Media in Science Learning at SDS Bina Satria Mulia".

Based on the problem formulation above, the researcher aims to:

1. Knowing how to develop Quartet Card Media in Science Learning for Class V at SDS Bina Satria Mulia.
2. Measuring the validity of Quartet Card Media in Science Learning for Class V at SDS Bina Satria Mulia.
3. Knowing the students' responses to Quartet Card Media in Science Learning for Class V Bina Satria Mulia.

2. RESEARCH METHOD

The method used in this study is the research and development method or *Research and Development* (R&D). According to (Anjarsari et al., 2020) the *Research and Development* (R&D) research method is a research method used to produce certain products, and test the effectiveness of the product. In addition to testing the validity of the product, in this development, its practicality and effectiveness will also be tested, whether the product is suitable for application to students or not with the aim of obtaining empirical data that can be used as a basis for making products.

This study uses the ADDIE development design. The selection of this model is based on the consideration that this model is arranged in a programmed manner with a systematic sequence of activities in an effort to solve learning problems related to learning resources that are in accordance with learning needs and characteristics. According to (Liberta Loviana Carolin et al., 2020) the development of the ADDIE Model consists of 5 stages, namely (1) Analysis stage (*Analyze*), (2) design stage (*Design*), (3) development stage (*Develop*), (4) implementation stage (*Implementation*), (5) evaluation stage (*Evaluation*). The fifth stage above is the steps in developing quartet cards, from the five stages above this study uses up to the implementation

stage (*Implementation*) in the steps for developing quartet card media.

3. RESULT

This analysis was conducted to answer the formulation of the research problem regarding how 21st century skills in the 4C aspect, especially collaboration, develop before, during, and after the use of SMAB media in science learning. This study uses observation data on student and teacher activities, observation of student collaboration skills, and the results of 21st century skills tests. All data were collected through observation and documentation techniques from pre-cycle to cycle II.

The results of the analysis showed that in cycle I, students' learning activities and collaboration skills were not optimal. Many students were unable to work together effectively in groups. However, after improvements were made to learning in cycle II by maximizing the use of SMAB media, there was a significant increase in students' learning activities and collaboration. This shows that the interventions carried out succeeded in encouraging more active and cooperative student involvement.

The observation sheet shows an increase in teacher performance and student activity. Teacher activity increased from 55.55% (pre-cycle) to 88.89% (cycle II) with very good criteria. Likewise, student activity increased from 66.66% to 90.47%. This increase shows that the use of SMAB media significantly improves the quality of interaction and learning activities in the classroom, especially in building cooperation between students.

In terms of collaboration skills, student completion also experienced a significant increase. In the pre-cycle, only 35% of students achieved the KKM, then increased to 60% in cycle I, and reached 100% in cycle II. This means that all students succeeded in achieving the set collaboration skill targets, showing a positive impact of using SMAB media on students' collaboration skills.

Overall, the use of SMAB (Smart Box) media has proven effective in improving 21st century skills, especially the collaboration aspect, in science learning. This media is able to create an interactive learning atmosphere, encourage discussion, group work, and mutual respect between team members. Thus, SMAB media can be an innovative solution in improving the quality of learning and preparing students to face the challenges of 21st century education.

4. DISCUSSION

The researcher designed the quartet card media components with a focus on visual design, relevant content, and the selection of appropriate materials and sizes. The quartet cards were made small and easy to carry, containing information in the form of images and writing, with an attractive design using the Canva application. The card theme follows a general pattern with the title above, the main image, and four subtitles, containing IPAS material about the Water Cycle and its benefits.

The front of the card contains a guide on how to play, while the back contains a barcode to access the video tutorial. The guide on how to play is printed on hard art paper, while the quartet cards are printed on glossy art paper measuring 7.4 cm x 5.2 cm. The researchers also made a storage box from glossy art paper measuring 9 cm x 5.7 cm so that the cards are easy to store and carry without being messy.

The design and components of this quartet card aim to produce effective and interesting learning media, helping students understand the water cycle material. By paying attention to the material, size, and layout, this media is expected to support the teaching and learning process optimally.

Overall, the design of this media integrates attractive visuals and interactive guides that are easily accessible through video barcodes, so that the quartet card learning media becomes a practical and fun tool for students in learning the water cycle.

5. CONCLUSION

This study produced learning media in the form of quartet cards developed using the ADDIE model up to the fourth stage, namely Analysis, Design, Development, and Implementation. At the analysis stage, identification of needs, student characteristics, and curriculum analysis were carried out. The media design was made attractive using Canva, including water cycle material, LKPD, and assessment instruments. At the development stage, the media was validated by material, language, and design experts. The validation results showed that the media was very feasible to use, with a material validation score of 88%, language 98%, and design 96%, all in the "very valid" category.

The media was then implemented in the classroom by involving teachers and students. The trial results showed that the quartet card media was practical and easy to use in learning.

The teacher's assessment showed the practicality of the media with a score of 100%, while students gave a positive response with a score of 96%, indicating very good acceptance.

With a high level of validity and practicality, this quartet card media is declared suitable for use as a science learning media in class V of SDS Bina Satria Mulia.

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Collate acknowledgments in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (eg, providing language help, writing assistance or proof reading the article, etc.).

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