

Research Article

Development of QR Code Based Flashcard Media in Social Science Subject for Class VII A at SMP IT Al-Ghozali Jember

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ABSTRACT

This study focuses on the development of learning media in the form of QR code-based flashcards for Social Sciences (IPS) subjects in class VII A of SMP IT Al-Ghozali Jember. The background of this study is based on problems in IPS learning, such as material abstraction, lack of media innovation, and minimal interaction between teachers and students. The study used the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, although only up to the development stage. The results of the study indicate that flashcards as visual media can help students understand IPS concepts more easily and interestingly. The developed flashcards not only contain text and images but are also equipped with QR codes that can be accessed via smartphones for additional interactive materials, supporting independent and collaborative learning and increasing student involvement. The validation test of this learning media includes the feasibility of the media and flashcard material as a learning medium. In addition, this study also emphasizes the importance of innovation in learning media to improve the effectiveness of teaching and interaction in the classroom; thus, the development of QR Code-based flashcards is expected to be an alternative solution in improving the quality of IPS learning at the junior high school level.

Keywords: Flashcard; Learning Media; QR Code; Social Sciences.

1. INTRODUCTION

Learning media has a very important role in the educational process (Azhura et al., 2024; Wafi & Safri, 2023). This media functions as an intermediary that can help students understand the subject matter better. Learning media can stimulate students' attention and thoughts so that they are more involved in learning activities (Zakiyah et al., 2022). Various studies have shown that the development of appropriate learning media can improve students' knowledge. The development of appropriate media can help students understand the material better and improve their learning (Nurrita, 2018). Moreover, interactive learning media, such as cartoons and animations, can improve students' understanding of the subject matter. Cartoon-based interactive media can be used to convey material in a more interesting and easy-to-understand way (Caroline et al., 2020). Therefore, the development of effective learning media is very necessary to achieve optimal educational goals.

The development of flashcard media as a learning tool in Junior High Schools (SMP) is a strategic step to increase the effectiveness of the teaching and learning process. Flashcards can be adapted to various subject matter, making it easier for teachers to convey information to students (Saadah & Yulia, 2022). Muharis & Yulia (2022) showed that the development of flashcards can improve students' self-control, which contributes to better learning. In addition, flashcards can also improve students' reading skills in various aspects of the lesson (Jannah & Zuhroh, 2022). This confirms that flashcards can function as an effective tool in education, especially at the junior high school level.

The development of flashcard media in the form of cards with pictures and information has been proven effective in improving students' understanding of the subject matter (Putri et al., 2024; Novitasari & Ahmadi, 2023). Research shows that flashcards can create an interactive and interesting learning atmosphere so that students are more motivated to learn (Uyuni, 2023). Aziza & Yulia (2022) showed that students who used flashcards experienced a significant increase in their ability to remember material compared to traditional learning methods. In addition, flashcards can also support collaborative learning in the classroom. By using flashcards, students can work in groups to test each other's knowledge, which can increase engagement and interaction between students (Mustakimah, 2022). Thus, this approach not only makes learning more enjoyable but also helps students learn from each other, which is an important aspect of education in junior high schools.

The development of learning media is an important aspect to improve the effectiveness of the teaching and learning process, especially in Social Sciences (IPS) subjects at the Junior High School (SMP) level. Research shows that the development of flashcard media can improve students' understanding of the material being taught, making it relevant to be applied in IPS learning (Sugiarti et al., 2023). Several studies indicate that IPS learning often faces challenges in delivering material in an interesting and interactive way. The Ministry of Education and Culture of the Republic of Indonesia encourages innovation in learning methods to increase student motivation and engagement. Flashcards can function as an effective tool, providing clear visualization of the social concepts being taught so that students can more easily remember and understand the information (Santoso et al., 2018). According to Hayati (2022), interactive learning media such as flashcards can increase student participation in the learning process, creating a more dynamic and enjoyable learning atmosphere. Thus, the development of flashcard media for social studies subjects in grade VII of junior high school is expected to provide variation in the teaching methods used by teachers.

Social Sciences (IPS) subjects in grade VII have an important role in shaping students' understanding of the social, cultural, and historical environment. Flashcards, as visual aids, can change abstract information into more concrete ones, making it easier for students to understand the material being taught (Hasan, 2023). Hayati (2022) showed that well-designed flashcard learning media can help students understand the material well and increase their involvement in the learning process. The development of flashcard learning media using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) is a relevant approach in the current educational context (Mu'anayah et al., 2024). This model allows researchers to produce accountable educational products, making it very suitable for the development of learning media such as flashcards (Dayanti et al., 2023). Pimada et al. (2020) stated that flashcards can help students remember information through images and texts that are presented in an interesting way. By implementing the ADDIE model, the development of flashcard media can be carried out systematically and structured, resulting in quality products that are in accordance with student needs.

Flashcards are simple but effective learning aids that can help students understand and remember information better. Research shows that the development of flashcards in social studies learning can improve students' understanding of the material being taught (Amaliah, 2023). Sari et al. (2023) stated that learning media that combine images and text can explain the material in more detail and interestingly. The integration of technology in learning media is very important to increase the effectiveness of education. One relevant innovation is the use of QR Code-based flashcards, which allow students to easily access additional information such as video, audio, or explanatory text via smartphones. According to Yustina et al. (2021), this technology can increase student engagement and enrich learning content interactively and flexibly.

The use of flashcards with QR codes can also provide access to supplementary materials such as learning videos, interactive quizzes, or more in-depth concept explanations. Research (Agustin et al., 2022) shows that QR code integration in flashcards can increase students' interest in the material and strengthen information retention through multimodal learning experiences. Thus, the development of QR Code-based flashcards can be an effective strategy to integrate technology in social studies learning and improve the quality of education. The development of innovative learning media, such as QR code-based flashcards, is very important to improve the quality of education in Social Studies (IPS) subjects. Research shows that the development of QR Code-based flashcard media can improve students' understanding of the material being taught (Saadah & Yulia, 2022). Hasan (2023) argues that interesting learning media can attract students' attention so that they are more involved in the learning process.

2. RESEARCH METHOD

This study uses the Research and Development (R&D) method, which aims to develop and test the effectiveness of products or learning media that have been developed (Sugiyono, 2021). And also to create effective problem solutions in the context of education. The type of research used is research and development. This research was conducted to develop flashcard media as a social studies learning aid to overcome the challenges of material abstraction, lack of media innovation, and minimal interaction between teachers and students. Literature studies were conducted by studying reference books and journals related to research problems according to the title raised. The theories studied are flashcards, Research and Development (R&D), learning media, social studies, and so on. The development model used is ADDIE (Analysis, Design, Development, Implementation, Evaluation). This model was chosen because it supports the process of developing learning media systematically and structuredly (Branch, 2009). In this study, the flashcard media developed was not only in the form of visual print media but was also integrated with a QR code. Each card will be equipped with a QR code that can be scanned using a smartphone device to access additional materials such as explanatory videos, simulations, or interactive audio related to the social studies topic being discussed. Thus, the development of this media reflects a combination of conventional and digital approaches to support adaptive and interactive multimodal learning. However, this research was only conducted up to the development stage with the aim of producing flashcards as valid social studies learning media based on media expert and material expert tests. The stages of the ADDIE development model used in this study start from the Analysis stage, which is carried out through observation and interviews with teachers and students, which aim to identify needs in the development of flashcard learning media on social studies subjects and the characteristics of class VII A students and ensure that the media developed is in accordance with the learning context. The next stage is design, where

the initial concept of the flashcard is designed based on the results of the analysis. The flashcard design is designed by considering interesting elements, including the selection of visual layouts, colors, and other interactive elements, so that the media is easy for students to understand. The development stage is the process of making flashcard media according to the design that has been made, using graphic software. After that, the implementation stage was carried out by testing flashcards in social studies learning on a small group of students in class VII A. The teacher uses this media in the learning process, and students will interact with flashcards to improve their understanding of social studies concepts. Finally, the evaluation stage, formative evaluation, was carried out during development to identify areas that needed improvement, and summative evaluation was carried out after the trial to assess the effectiveness of flashcards in social studies learning.

Data analysis from the results of the validation test by material and media experts, as well as teacher responses through questionnaires, was carried out using qualitative descriptive techniques with percentages to determine the level of validity (Irwansyah & Elviana, 2024; Priantini, 2020). This process is carried out by observing the scores obtained from the measurements, then calculating using the following formula:

$$P = \frac{\sum x}{\sum X} \times 100\%$$

Description:

P : Percentage sought

$\sum x$: Total score given by the validator

$\sum X$: Total number of scores

The percentage obtained is then grouped into assessment criteria according to the following table:

Table 1. Media Feasibility Criteria, Material Feasibility, and Teacher Response

Number	Percentage	Criteria
1.	81 – 100%	Very Eligible
2.	61 – 80%	Eligible
3.	41 – 60%	Quite Eligible
4.	21 – 40%	Not Eligible
5.	0 – 20%	Very Not Eligible

Source: (Arikunto, 2006)

3. RESULTS AND DISCUSSION

3.1 Results

This study aims to develop learning media in the form of QR Code-based flashcards for Social Sciences (IPS) subjects for class VII A at SMP IT Al-Ghozali Jember. The development process was carried out using the ADDIE model, which consists of the Analysis, Design, and Development stages but is limited to the development stage. The main focus in this stage is to test the feasibility of learning media through validation by media experts, material experts, and teacher responses to the products developed. In the analysis stage, an observation process and interviews were carried out with teachers aimed at identifying the needs in developing flashcard media for IPS subjects for class 7A students, which were adjusted flashcards with the theme "Jember Culture, Lahbako Dance".

In the Design stage, the first step is to determine the materials to be included according to the predetermined theme (Nuryani & Wintarti, 2022). The theme obtained by the researcher is "Jember Culture, Lahbako Dance", so the material chosen is the image of "Lahbako Dance" which is formatted into a cartoon. The second step is to determine the application that will be used in the Flashcard making process. Choosing the right application plays an important role in determining the quality and efficiency of production. In this case, the researcher chose to use CorelDraw and Canva as the main tools.

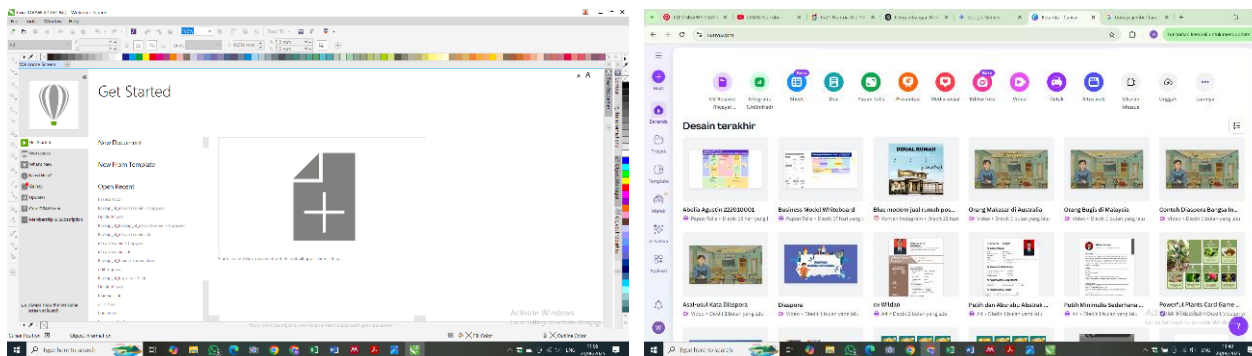


Figure 1. CorelDram and Canva

At the development stage, the flashcard development process is carried out by pouring out the previously designed flow and adjusting it to the elements that have been prepared.

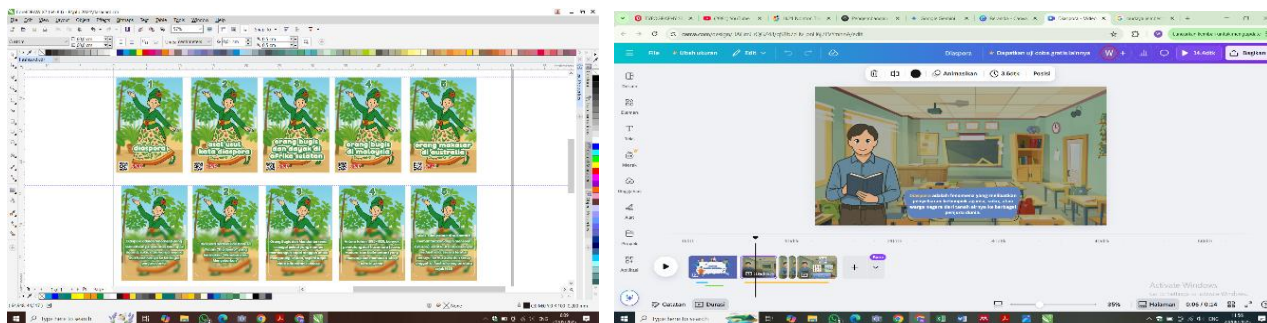


Figure 2. Creating Flashcards Based on QR Codes

The next stage is implementation, where e-comics are tested on a small group of 7th grade A students. Teachers use this media in the learning process, and students will interact with flashcards to improve their understanding of social studies material. The last stage is evaluation, which includes analysis of formative and summative evaluation results based on data obtained from the implementation stage (Sawitri et al., 2024). Formative evaluation is carried out by reviewing assessments from material experts, media experts, and teacher responses, which are then used as a basis for product improvement. Meanwhile, summative evaluation aims to assess the effectiveness of the product developed during the effectiveness test stage.

Table 2. Results of Tests by Material Experts, Media Experts, and Teacher Responses

Number	Name	Results	Category
1.	Materials Expert	90%	Very Eligible
2.	Media Expert	84,6%	Very Eligible
3.	Teacher Response	83,6%	Very Eligible

Based on the validation results conducted by material experts, media experts, and teachers, the results obtained showed that QR Code-based flashcard media has very good feasibility for use in social studies learning. Validation from material experts showed a value of 90%, which is included in the very feasible category, indicating that the content of the material is in accordance with basic competencies and learning objectives. Validation from media experts gave a result of 84.6%, also in the very feasible category, reflecting that the visual design, readability, and layout of the media have met the standards for the feasibility of learning media. Meanwhile, the response from teachers showed a value of 83.6%, indicating that this media is easy to use, interesting, and able to improve student understanding. These results are in line with the opinion of Arikunto (2006), which states that learning media with a feasibility percentage above 80% can be categorized as very feasible and ready to be used in the learning process.

The development of QR code-based flashcard media is a very relevant innovative step in improving the quality of education, especially in social studies subjects. QR code integration allows students to easily access additional information such as videos, audio, or explanatory texts via smartphones, thus enriching learning content interactively and flexibly (Yustina et al., 2021). This approach not only makes learning more interesting but also strengthens information retention through multimodal learning experiences, as shown in research (Agustin et al., 2022). Thus, QR Code-based flashcards can be an effective strategy to improve students' understanding and active participation in the learning process.

4. CONCLUSION

Based on the results of the research conducted, it can be concluded that the development of learning media in the form of QR code-based flashcards in Social Sciences (IPS) subjects for class VII A at SMP IT Al-Ghozali Jember is declared very feasible to be used as learning media. This is based on the results of the validation test by material experts of 90%, media experts of 84.6%, and teacher responses of 83.6%, all of which are included in the very feasible category according to the criteria (Arikunto, 2006). The developed flashcard media not only presents information through text and images but also integrates digital elements in the form of QR codes that can be accessed with smartphones to display additional materials such as videos or learning simulations. This helps students understand IPS concepts more comprehensively and enjoyably. Overall, QR code-based flashcard media has proven to be an innovation that supports multimodal and interactive learning. This media not only makes it easier for teachers to deliver material but also actively increases student involvement in the learning process. By combining visual and digital approaches, QR code-based flashcards contribute to increasing student understanding, motivation, and participation in IPS learning. Therefore, this media can be used as an alternative solution to overcome the challenges of material abstraction and low innovation in learning media at the junior high school level.

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