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# Digital-Based Flash Card to Increase Social Studies Learning Outcomes for Elementary School Students in The Fourth Grade

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***ABSTRAK***

*Pengembangan media pembelajaran yang inovatif sangat diperlukan untuk memberikan pengalaman belajar yang berbeda dan bervariasi. Hal ini diperlukan untuk merangsang minat belajar siswa untuk mencapai hasil belajar yang maksimal. Tujuan dari penelitian ini adalah untuk mengembangkan dan menganalisis pengaruh media flashcard berbasis digital terhadap peningkatan hasil belajar IPS siswa kelas IV SD. Penelitian ini menggunakan metode R&D (Research and Development) dan mengadaptasi model pengembangan ADDIE. Populasi dalam penelitian ini adalah siswa kelas IV. Penelitian ini mengambil sampel secara acak sebanyak 126 siswa kelas IV dan dihitung menggunakan rumus Slovin dengan margin of error 5%. Hasil penelitian ini menunjukkan bahwa hasil validasi ahli materi 83,3% dalam kategori layak. Hasil ahli media 93,3% dalam kategori sangat layak, dan hasil keefektifan media pembelajaran diperoleh melalui angket yang diberikan kepada siswa pada saat pretest dan posttest. Penelitian ini menyimpulkan bahwa media flashcard berbasis digital berdampak positif terhadap hasil belajar IPS siswa kelas IV SD.*

**ABSTRACT**

The development of innovative learning media is needed to provide a different and varied learning experience. This is required to stimulate student interest in learning to achieve maximum learning outcomes. The aim of this study is to develop and analyze the effect of digital-based flashcard media to improve social studies learning outcomes for fourth-grade elementary school students. This research uses R&D (Research and Development) methods and adapts the ADDIE development model. The population in this study were fourth-grade students. This study randomly took a sample of 126 fourth-grade students and calculated using the Slovin formula with a margin of error of 5%. The results of this study show that the results of material expert validation 83.3% in the worthy category. The results of media experts 93.3% in the very worthy category, and the results of the effectiveness of learning media are obtained through a questionnaire given to students at the pretest and posttest. This study concludes that digital-based flashcard media positively impacts social studies learning outcomes for fourth-grade elementary school students.



## 1. INTRODUCTION

The world has entered the digital or industrial revolution 4.0 era in this generation. In this era, technology is developing rapidly in various fields, including education (Astuti et al., 2019; Hoesny & Darmayanti, 2021). In the 21st century, information and communication technology has become an essential part of the teaching process by changing all aspects of education to improve pedagogical practice and promote effective ways to manage time in the classroom (Akkus et al., 2007; Baker, 2004; El-Sofany & El-Haggar, 2020). It may not have been thought that someone could carry out activities or search for information with just the touch of a finger, but now this has become a reality because of the rapid development of technology. The existence of technological advances has changed people's lifestyles. Currently, most people prefer to do almost all activities using digital media. Digital media is considered effective and efficient in its use and is attractive because it uses technology (Al Mamun et al., 2022; Shine & Heath, 2020; Wong et al., 2013). This situation could help someone to be more creative and innovative. For example, teachers use technology in learning activities. Digital media has become part of the learning process, so it is the school's task to prepare a highly mediated school world for students (Greve & etc, 2020; Samerkhanova & Imzharova, 2018; Sembiring et al., 2018). Mediated learning for students will encourage teachers to focus on how students can solve problems. Learning is a process of teaching and learning activities that can determine the success of student learning. Learning provides opportunities for students to develop their potential, resulting in cognitive, affective, and

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psychomotor changes (Magdalena et al., 2021; Weigel & Bonica, 2014). As one of the main components that regulate the learning process, the teacher has an essential role in creating active, practical, engaging, and meaningful learning for students so that the maximum achievement of learning objectives is achieved (Duchatelet & Donche, 2019; Putri Ningrat et al., 2018). A significant learning question is a learning activity that can attract students' attention and foster interest and motivation to learn so that students can carry out learning activities with fun and achieve maximum learning outcomes (Irawaty et al., 2021; Maesaroh, 2013). Many factors can affect the success of achieving learning objectives, for example, the selection of methods and the use of learning media that are in accordance with the subject matter and student characteristics. The development of innovative learning media is needed to provide a different and varied learning experience. This is required to stimulate student interest in learning to achieve maximum learning outcomes. In addition, the development of digital-based learning media can foster attitudes and skills in technology so that students can use technology wisely in this era (Ayuningtyas et al., 2018; Safitri et al., 2019). Previous study state that the effectiveness of educational programs in a mobile learning environment is achieved by aligning cognitive load and structuring educational content (Zhampeissova et al., 2020). Alignment of cognitive load and arrangement of the educational content must be considered in presenting interesting but meaningful learning. Digital technology in education is essential in developing increased access to education through access to various digital formats and providing websites as online learning media (Leksono et al., 2020; Sjahruddin et al., 2022). Therefore, as educators, taking advantage of technology and implementing it in learning is crucial. However, most digital markets are full of applications that are promoted as educational but have little or no pedagogical value because they are often created with limited input from educators or developmental specialists (Papadakis et al., 2020; Sjahruddin et al., 2022). To develop learning media that can be used optimally, it is necessary to pay attention to how to use it, which is also easily understood by educators.

There are many kinds of learning media, one of which is flashcards. Flashcards are small cards that contain images, text or symbols that are usually used to remind or direct students to something related to the idea (Aba, 2019; Suprianti & Jayanta, 2020). Flashcard media is an educational game tool that uses cards to learn the material. Along with technological advances and the development of the times, flashcards which were previously small cards made of paper, can now be developed as digital-based flashcards (Erviana & Andriani, 2019; Suprianti & Jayanta, 2020). A digital-based flashcard is a development of learning media that utilizes technology so that its current use can be more effective and efficient. Based on the research study, flashcards and board games that are applied to teach Mandarin can all help students to have high motivation and learning experiences (Wen et al., 2020). In this study, flashcard media was used in learning Mandarin. Flashcards have a positive influence on students' motivation and learning experience. Based on other research related to the use of media in learning shows that there is a significant positive effect on increasing student interest in learning (Singh. & Prasad Singh, 2021). Media use in education increases student interest in learning, impacting learning outcomes and students' critical thinking skills (Nawaz & Ghulam, 2010; Rands et al., 2021).

In addition, the use of media has also succeeded in presenting more concrete delivery of material in a lesson so that students easily understand it. From the studies above, flashcard media are usually presented in the form of cards made of paper. In previous studies, although flashcard media had been introduced in digital format, they were generally only used to memorize foreign vocabulary (Utami, 2021). Flashcard media in previous studies only contained pictures and explanations, and the use of flashcard media still needed to be used in other learning (Erviana & Andriani, 2019). In addition, flashcard media is only used to increase students learning motivation. In this study, researchers developed flashcard media combined with technology for social studies learning. Code accompanies the created flashcard media to access materials, videos, and quizzes related to the material presented with internet access. The digital-based flashcard media developed by the researcher has been packaged attractively because pictures support the material. For the use of flashcard media to be more interactive and involve students in gaining learning experiences, students are introduced to technology that is easily accessible anytime and anywhere.

## 2. METHOD

This research method uses Research and Development (RnD) to develop digital-based flashcard media products. This research and development use the ADDIE model, which consists of 5 stages: analysis, design, development, implementation, and evaluation. And this research uses a pre-experimental design method type one group pretest-posttest to test the effectiveness of the resulting product. The pretest was carried out before being given a digital-based flashcard media, while the posttest was carried out after being given a digital-based flashcard media. Thus, the results can be known more accurately because it can compare the conditions before and after treatment. The research pattern of the one-group pretest-posttest design method is show in Table 1.

**Table 1.** Experimental Design of the Digital-based Flash Card to Increase Social Studies Learning Outcomes

| Group | Pretest | Treatment | Posttest |
|---|---|---|---|
| Experiment | O1 | X | O2 |

This study involved fourth-grade elementary school students in Rawa Buaya Village, Cengkareng, West Jakarta, Indonesia. This study took a random sample using the Slovin formula involving 126 fourth-grade students in Rawa Buaya Village, Cengkareng, West Jakarta, Indonesia. The sample calculation in this study was calculated using the Slovin formula with a margin of error of 5%. This research uses pretest and posttest instruments related to learning outcomes in learning social studies. The grid of pretest and posttest instruments for students' cognitive abilities can be seen in Table 2.

**Table 2**. Pretest and Posttest Grid

| Cognitive Dimension | Indicators | Question Number |
|---|---|---|
| C2 - Understanding | Explaining the meaning of economic activity | 1 |
| | Explaining the purpose of economic activity | 2 |
| C3 - Application | Determining the type of work based on geographic location | 3 |
| | Determine examples of production, distribution, consumption | 4 |
| | Sequencing activities economics of paper making | 5 |
| C-4 Analyzing | Identifying economic activities and their relationship to various fields of work | 6 |
| | Analyzing economic activities based on the narrative of the text presented | 7 |
| | Analyzing the results obtained by workers from their work | 8 |
| C5 - Evaluation | Comparing economic activities of production, distribution, and consumption | 9 |
| C6 - Creation | Compiling an example of a scheme of economic activity for the local community | 10 |

The pretest was given before being given treatment. After the experimental treatment, a posttest was given to the experimental group. The results of the pretest are used as a comparison with the posttest results of the experimental group after being given treatment. The comparison between the pretest and posttest groups shows the effect of using digital-based flashcard media. In addition, this research and development also use validation instruments from material experts and media experts to test the feasibility of the media at the trial stage. Material expert validation grid is show in Table 3 and Media validation instrument grid is show in Table 4.

**Table 3.** Material Expert Validation Grid

| No. | Aspect | Indicator |
|---|---|---|
| 1. | Quality of content | Compatibility of digital flashcard content with economic activity material |
| | | Compatibility of digital flashcard content to learn economic activities |
| | | The depth of the material presented |
| | | The material is under the level of students' ability. |
| | | The material is accessible for students to understand |
| | | Quiz and evaluation questions are used both to test students' abilities. |
| | | The images presented following the material |
| 2. | Language | The language used is communicative, effective and efficient. |
| | | The language used is easy for students to understand |
| 3. | Implementation | of digital-based flashcard learning media according to student needs |
| | | It can be used individually or in groups. |
| | | The practicality of digital-based flashcard media |

**Table 4.** Media Validation Instrument Grid

| No. | Aspect | Indicator |
|---|---|---|
| 1. | Display Design | Proportional layout (layout of text and images) |

| No. | Aspect | Indicator |
|---|---|---|
| | | Appropriateness of background selection |
| | | Appropriateness of colour proportions |
| | | Appropriate selection of font and font size |
| | | Attractive digital flashcard display |
| 2. | Content/material integration | Accuracy of images used for material clarity |
| | | Compatibility of images with material |
| | | Clarity material description |
| 3. | QR-Code | The suitability of the text content of the material in the Q.R. code |
| | | Videos and quizzes presented with the Q.R. Code can be accessed. |
| 4. | The use | of digital-based flashcards is easy to use |
| | | The practicality of digital-based flashcard media |

In statistical analysis, the Kolmogorov-Smirnov test was performed to test the normality of the data distribution. In this study, inferential statistics for hypothesis testing using paired sample t-test. Conclusions from the hypothesis are made using criteria with a significance level of 0.05. Data measurement analysis techniques to determine the responses of media and material experts using a Likert scale with the questionnaire score category can be seen in Table 5.

**Table 5.** Validation of Media Experts and Material Experts

| Scoring scale | Alternative Answer |
|---|---|
| 5 | Very Good |
| 4 | Well |
| 3 | Pretty Good |
| 2 | Not Good |
| 1 | Verry Not Good |

The feasibility test of digital-based flashcard learning media was analyzed with a percentage rating scale. The validation criteria used in the validity of digital-based flashcard media research are presented in Table 6.

**Table 6**. Validation Score-Category Media Experts and Material Experts

| No. | Percentage of Scoring Results | Eligibility Criteria |
|---|---|---|
| **1.** | 90% – 100% | Very Worthy |
| **2.** | 80% – 89% | Worthy |
| **3.** | 65% – 79% | Pretty Worthy |
| **4.** | 40% – 64% | Less Worthy |
| **5.** | 0 – 39% | Not Feasible |

## 3. RESULT AND DISCUSSION

### Result

This research and development use the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation.

***Analysis***

At this stage, researchers identify learning materials that require media learning and then place the content of the learning material. In addition, researchers also identified the learning media needed to support learning in this era. Based on the observations, social studies learning requires innovative and digital-based learning media.

Before designing learning media, researchers analyzed the learning outcomes of fourth-grade elementary school students in Rawa Buaya Village, Cengkareng, West Jakarta, Indonesia, in social studies learning economic activities. Based on the analysis results, students still have not mastered the material for economic activities because the learning is still monotonous, so students are less interested, impacting student learning outcomes. Therefore, learning media such as digital-based flashcards are needed to improve students' social studies learning outcomes.

***Design***

The digital-based flashcard media design was made per the needs analysis of fourth-grade elementary school students in Rawa Buaya Village, Cengkareng, West Jakarta, Indonesia, on economic activities. The first stage is to formulate indicators and learning objectives to be achieved based on the theme of 4 economic activity materials. The material discussed is the definition of economic activity, types of economic activity, the relationship between types of economic activity and geographic location, examples of community economic activities, and schemes of economic activities. Next, determine the appropriate image to support the material for economic activities, select the video that is relevant to the material, and create a quiz that is presented in the form of a Q.R. Code. After that, please choose the location of the image and explanation of the material so that it has an attractive appearance.

***Development***

At the stage of developing digital-based flashcard learning media in social studies learning, the grade fourth elementary school economic activity material is divided into several stages. In the first step, the researcher prepares the Canva application to design and design digital-based flashcard learning media. The Canva application enters content, images, videos and quizzes as a Q.R. Code. Furthermore, the researcher developed a digital-based flashcard learning media by packaging economic activity materials with previously prepared content. The following is a digital-based flashcard cover display produced by the researcher.


**Figure 1.** Cover Digital-Based Flash Card

Figure 1 shows a cover digital-based flashcard. The cover page contains class descriptions, material titles, theme titles, and illustrations of various works to support the material to be discussed.


**Figure 2.** Learning Material Picture

Figure 2 shows an example of a picture display of learning materials, namely the type of economic activity. The figure illustrates the types of economic activities: production, distribution, and consumption.

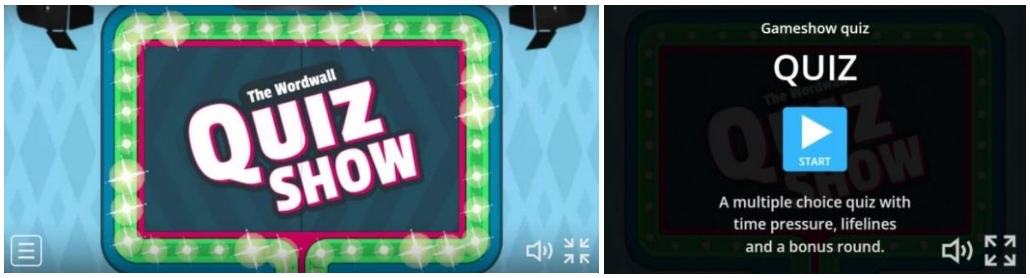

**Figure 3.** Material Barcode

Figure 3 shows a Q.R. Code. The QR Code explains the material related to the previous slide. The material is illustrated as a Q.R. Code containing learning videos.


**Figure 4.** Material Explanation

Figure 4 shows an explanation of the material in the form of an image accompanied by a description. The picture is an example of an economic activity scheme for making milk so that it can be consumed.


**Figure 5.** Q.R. Code Quiz




**Figures 6.** Quizzes

Figure 5 shows a Q.R. Code containing a quiz. Students can access the Q.R. Code to play quizzes. Figure 6 shows one of the quizzes in a digital-based flashcard media. The quiz is an exercise for students to answer questions about the material. Quizzes are presented with an attractive appearance, like a game, and there are scores, so students are more motivated to learn. The next step is to re-check the completeness of the material, its accurate selection of images related to the material, the suitability of the video material, and the suitability of practice with material on digital-based flashcard media

***Implementation***

The implementation stage of digital-based flashcard learning media studying economic activity learning material in Grade IV in elementary school was tested by material experts and media experts who validated the developed digital-based flashcard media. Media validation is done by distributing questionnaires. The results of the proof of these experts used to improve digital-based flashcard learning media products. After getting a valid score from the expert, the digital-based flashcard media was tested randomly on a random sample involving 126 fourth-grade students as a participant experimental group. Before the trial, students were given a pretest

questionnaire about student learning outcomes, and after the media trial, students were given a posttest questionnaire about student learning outcomes in the study. Based on the results of the normality test, it is known that the significance value is 0.193 > 0.05; it can be concluded that the residual value of the pretest and posttest learning outcomes of fourth-grade elementary school students are typically distributed. Based on the results of the paired sample t-test, it can be seen that the average value of the pretest = 63.33 and the average value of the posttest = 87.65. It can be interpreted that the average posttest score after testing digital-based flashcard media is better than the mean value of the pretest before being tested on the media. Base on data analysis results whether or not there is a relationship between the pretest and the posttest. The table shows a significance < 0.001. This indicates that the importance is less than 0.05, so it can be concluded that there is a relationship between the pretest and posttest.

Based on data analysis results, it is known that the significance value of (2-tailed) is < 0.001. these results show <0.05, then Ho is rejected, and Ha is accepted. These results indicate a significant effect on the differences in the treatment given to each variable. Therefore, using digital-based flashcard media positively improves the learning outcomes of fourth-grade elementary school students. Based on the results of the paired sample t-test shows that the use of digital-based flashcard media has a positive effect on social studies learning outcomes for fourth-grade elementary school students in the Rawa Buaya village, Cengkareng, West Jakarta. Many factors cause student learning outcomes to increase. One of them is the selection of learning media following the material and character of students. Using digital-based flashcard media provides a learning experience for students using the exciting press. The use of technology-based media increases students' interest in learning. The use of digital-based flashcard media is a new experience for students to be able to access learning media easily. In addition, the use of digital-based flashcard media is also practical and easy to understand. Digital-based flashcard media contains images that stimulate students to understand better the material presented so that it has an impact on increasing student learning outcomes.

***Evaluation***

The evaluation involved material experts and media experts in the process of improving the digital-based flashcard that was developed. The result of material experts is show in Table 7.

**Table 7.** Results of Material Expert Validation Assessment

| No. | Aspect | Indicator | Max Score | Score |
|---|---|---|---|---|
| 1. | Quality of content | Compatibility of digital flashcard content with economic activity material | 5 | 4 |
| | | Compatibility of digital flashcard content to learn economic activities | 5 | 4 |
| | | The depth of the material presented | 5 | 4 |
| | | The material is by the level of students' ability | 5 | 4 |
| | | The material is accessible for students to understand | 5 | 4 |
| | | Quiz and evaluation questions are used both to test students' abilities | 5 | 4 |
| | | The material presents the images | 5 | 5 |
| 2. | Language | The language used is communicative, effective and efficient | 5 | 5 |
| | | The language used is easy for students to understand | 5 | 4 |
| 3. | Implementation | of digital-based flashcard learning media according to student needs | 5 | 3 |
| | | It can be used individually or in groups | 5 | 4 |
| | | The practicality of digital-based flashcard media | 5 | 5 |
| | | **Total** | **60** | **50** |

Based on Table 7 the material expert validation assessment table results, it is known that the average percentage of achievement obtained from 3 aspects, including 12 statements in the questionnaire, is 83.3%. Thus, the material in the digital-based flashcard learning media developed has a worthy interpretation. Media experts result is show in Table 8.

**Table 8.** Media Expert Validation Assessment Results

| No. | Aspect | Indicator | Max Score | Score |
|---|---|---|---|---|
| 1. | Display Design | Proportional layout (layout of text and images) | 5 | 4 |
| | | Appropriateness of background selection | 5 | 5 |
| | | Appropriateness of colour proportions | 5 | 5 |
| | | Appropriate selection of font and font size | 5 | 4 |
| | | Attractive digital flashcard display | 5 | 5 |
| 2. | Content/material integration | Accuracy of images used for material clarity | 5 | 5 |
| | | Compatibility of images with material | 5 | 4 |
| | | Clarity material description | 5 | 4 |
| 3. | QR-Code | The suitability of the text content of the material in the QR code | 5 | 5 |
| | | Videos and quizzes presented with the Q.R. Code can be accessed | 5 | 5 |
| 4. | The use | of digital-based flashcards is easy to use | 5 | 5 |
| | | The practicality of digital-based flashcard media | 5 | 5 |
| | | **Total** | **60** | **56** |

Based on Table 8 the media expert validation assessment table, it is known that the average percentage of achievement obtained from 4 aspects, including 12 statements in the questionnaire, is 93.3%. Thus, the digital-based flashcard learning media developed has a very worthy interpretation. Based on material and media experts' test results, digital-based flashcard media is feasible for learning. Researchers also received suggestions and input regarding material and media design. Based on the opinion of material experts, digital-based flashcard media has provided a good presentation of the material and is under the learning objectives to be achieved. However, it would be better if the material presented could be more in-depth. In addition, media experts also argue that digital-based flashcard media already has a good and attractive design. The selection of images to support the material is also appropriate. The flashcard's choice of colours and backgrounds is also reasonable and very interesting. However, more attention must be paid to proportional size and writing because some cards must be symmetrical. Using digital-based flashcard media is appropriate for fourth-grade elementary school students individually or in groups in direct and online learning.

**Discussion**

This research is essential because, in the current reality, especially in social studies learning in elementary schools, only some variations of interactive learning media are still used in delivering material. For example, teachers still apply conventional learning where learning is teacher-centered, and students are less active. In addition, using learning media that involves technology could be more optimal, especially in social studies learning in elementary schools (Gilmanova, 2018; Vaportzis et al., 2017). Therefore, it encourages researchers to research more on developing digital-based flash card media to improve social studies learning outcomes for fourth grade elementary schools in Rawa Buaya Village, Cengkareng, West Jakarta, Indonesia.

Mobile learning is one of the answers to education reform. Mobile Learning can support the learning process teaching by adding flexibility to student teaching and learning activities in the current era. Mobile platforms and social networks provide a large amount of video and audio material which can also be used for educational purposes in an independent asynchronous mode (Han & Ellis, 2019; Lai et al., 2020). Mobile learning makes it easy for students to access learning through mobile devices. This encourages teachers to change their teaching strategies to keep up with technological developments. For example, teachers can develop learning media that will be used. Media development provides freedom for learning; it also increases the flexibility of teachers, who can create learning materials to meet specific needs or provide direct feedback and support to students (Al Mulhem, 2020; Cress et al., 2019). Especially in the current situation, namely during the Covid-19 pandemic, learning is done online. Therefore, the development of digital-based learning media is essential. The development of digital-based learning media can be done with basic steps such as mobile application development: requirements, design, programming, testing, and implementation (Sholikah & Dwi, 2021; Van et al., 2021). In developing digital-based learning media, the first thing to do is to analyze the needs of the media to be developed, the objectives and types of media according to the characteristics and needs of students. Next, describe in detail the media design that will be developed followed by programming, testing the feasibility of media to experts, and implementing media in learning. To create a media with these steps, provide careful preparation and planning in developing media. One example of the development of engaging digital

learning media is media that is presented with a game-like display or contains exciting pictures and videos that can be accessed via gadgets. Several studies have stated that gadgets and games positively impact the world of education (Blilat & Ibriz, 2020; Grant, 2019; Jelatu et al., 2019). Gadgets and games can positively impact the world of education if they are used for learning optimally. In the face of the current pandemic, it is hoped that adaptive learning approaches will be actively developed and focused on mobile learning (Alhalafawy & Zaki, 2019; Dorouka et al., 2020; Kalogiannakis & Papadakis, 2019). Adaptive learning is a learning process by adjusting the conditions, needs and environment of students so that mastery of knowledge, attitudes and skills occurs. Considering the unpredictable future requirements, this is important, so we must be prepared to deal with them. Mobile games or digital learning media will enrich the teaching process of educators while updating their teaching methods to Education 4.0 standards (Normadhi et al., 2019; Papadakis, 2020). Digital learning media provides variations of the latest learning media that follow the times and technological developments, like digital learning media that will be developed in this article, namely digital-based flashcards. Increase the use of flashcards; they can be accessed through mobile devices that help students memorize or remember the material that appears on the cards. Scientists believe that the primary purpose of visualization is to support logical operations at all learning stages, influence multiple channels of perception of information by a student, and ensure increased attention and efficiency in acquiring and memorizing new material (ai et al., 2020; Lavoué et al., 2019). Therefore, the selection of digital flashcard media is expected to enrich the variety of existing media, increase student interest in learning, and improve student learning outcomes.

On the other hand, a study also shows that integrating stories and pictures with flashcards for vocabulary learning and using smartphones makes learning different from the usual way of memorizing vocabulary directly and makes learning easier (Lai et al., 2020). Learning a foreign language using flashcard media that can be accessed by mobile phones can provide memorable and easily accessible knowledge. Several other studies stated that the development of applications that run on Android-based mobile phones allows students to use the system to study anytime and anywhere (Cress et al., 2019; Han & Ellis, 2019). This shows that learning is easier to implement because it knows no boundaries of space and time. Students can continue to study even though they do not meet directly with the teacher. Another study mentioned that the user-friendly nature of mobile learning technology is related to the use of educational resources by students, educators, and management (Al Mulhem, 2020). This shows that mobile technology makes learning easily accessible to students, teachers, and school management to carry out education because of user-friendly technology. Different studies concluded that digital readiness for students is related to the knowledge, attitudes, and competencies of utilizing digital technology to meet educational goals as well as components of the current success of digital education and future trends towards effective student learning outcomes in improving performance (Sholikah & Dwi, 2021; Van et al., 2021). Therefore, so that students can have the ability to use technology better in the future, teachers can introduce digital-based learning media so that students are accustomed to operating technology as a provision to face the future. The limitation of this research is that it only covers elementary school students in West Jakarta. This flashcard-based digital media can be implemented as social studies learning media to increase the learning outcomes of elementary school students throughout the Jakarta area to find out a positive effect of improving the learning outcomes of elementary school students.

## 4. CONCLUSION

Based on material and media experts' test results, digital-based flashcard media is feasible for learning. Researchers also received suggestions and input regarding material and media design. Based on the opinion of material experts, digital-based flashcard media has provided a good presentation of the material and is following the learning objectives to be achieved. However, it would be better if the material presented could be more in-depth. In addition, media experts also argue that digital-based flashcard media already has a good and attractive design. The selection of images to support the material is also appropriate. The flashcard's choice of colours and backgrounds is also relevant and very interesting. However, more attention must be paid to proportional size and writing because some cards must be balanced. Digital-based flashcard media is appropriate for fourth-grade elementary school students individually or in groups in direct and online learning.

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