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Development and Evaluation of E-Fun Thinkers Learning Media for Weather Theme to Enhance Grade III Students' Learning Outcomes

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A B S T R A K. *Pelaksanaan kegiatan pembelajaran tematik di kelas yang kurang bervariasi berdampak pada siswa yang cenderung pasif, sehingga hasil belajar menjadi kurang maksimal. Salah satu solusi untuk meningkatkan keaktifan siswa dalam proses pembelajaran adalah dengan menggunakan media pembelajaran, seperti media* E-Fun Thinkers. *Penelitian ini bertujuan untuk mengembangkan media pembelajaran* E-Fun Thinkers *Berbasis* Smart Apps Creator 3 *pada tema cuaca untuk meningkatkan hasil belajar siswa kelas III SD. Jenis penelitian merupakan penelitian pengembangan menggunakan model ADDIE. Metode analisis data deskriptif kualitatif dan kuantitatif. Subjek penelitian terdiri dari dua ahli materi, dua ahli media, dua guru, dan dua rombongan belajar siswa kelas III SD Negeri 5 Dauhwaru. Data dikumpulkan melalui kuesioner dan wawancara menggunakan instrumen berupa lembar kuesioner. Hasil penelitian menunjukkan produk media pembelajaran* E-Fun Thinkers *Tema Cuaca ahli media dinyatakan valid (96,5% ahli materi dan 93,5% ahli media), praktis (95% guru, 99% uji perorangan, 97,46% uji kelompok kecil), dan nilai* t_{hitung} *sebesar 16,207 yang artinya lebih besar dari* t_{tabel} *2,045 (taraf signifikasi 0,05), sehingga menyatakan bahwa terdapat pengaruh yang signifikan antara sebelum dan sesudah pengimplementasian media pembelajaran E-Fun Thinkers pada hasil belajar siswa kelas III. Simpulan penelitian menunjukkan media pembelajaran E-Fun Thinkers dibuat menggunakan aplikasi* Smart Apps Creator 3 *valid/layak digunakan dalam pembelajaran untuk meningkatkan hasil belajar siswa. Penelitian ini memberikan implikasi pada minat belajar siswa yang meningkat, sehingga mampu meningkatkan hasil belajar siswa.*

ABSTRACT. Implementing thematic learning activities in the classroom that are less varied impacts students who tend to be passive, so learning outcomes are less than optimal. One solution to increase student activeness in the learning process is using learning media, such as E-Fun Thinkers. This study aims to develop e-fun thinkers learning media based on Smart Apps Creator 3 on the theme of weather to improve the learning outcomes of third-grade elementary school students. This type of research is a development research using the ADDIE model. The data analysis methods are descriptive, qualitative, and quantitative. The research subjects comprised two material experts, two media experts, two teachers, and two third-grade students at SD Negeri 5 Dauhwaru study groups. Data were collected through questionnaires and interviews using instruments like questionnaire sheets. The results of the study showed that the E-Fun Thinkers learning media product with the Weather Theme was declared valid by media experts (96.5% of material experts and 93.5% of media experts), practical (95% of teachers, 99% of individual tests, 97.46% of small group tests). The t_{value} was 16.207, which means it is greater than the t_{table} of 2.045 (significance level of 0.05), thus stating that there is a significant influence between before and after the implementation of the E-Fun Thinkers learning media on the learning outcomes of grade III students. The study's conclusion shows that the E-Fun Thinkers learning media made using the Smart Apps Creator 3 application is valid/suitable for use in learning to improve student learning outcomes. This study has implications for increasing student learning interest, thereby improving student learning outcomes.

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1. INTRODUCTION

Learning is an activity designed by teachers through interactions between students, students with learning resources, and between students and teachers to help students acquire new knowledge. The process comprises planning, implementation, and evaluation stages (Aladin et al., 2024; Lampropoulos et al., 2022). In the learning process, learning media also play a very important role in bridging messages or materials from educators to students, so that students can be actively involved during learning (Aladin et al., 2024; Oktalia & Drajati, 2018; Puriasih & Trisna, 2022). Using learning media in the learning process can arouse motivation and interest in learning, stimulate learning activities, and even psychologically influence students (Firmansyah, 2024; Pinatih & Putra, 2021). During classroom learning, teachers can utilize learning media from the surrounding environment related to the theme so that students can observe things concretely and create student-centered learning. Students are at the center of educational endeavors, providing them with cognitive and affective learning experiences. They must also guide all decisions about what is done in the learning process (Hakiki et al., 2021; Indarta et al., 2022; Nurjanah & Mukarromah, 2021). The development of information and computer technology (ICT) has had a significant impact on various aspects of life, including education. Technological collaboration in the learning process is necessary to address the challenges of the 21st century (Indarta et al., 2022). Technology-based learning is an approach that utilizes technological devices to enhance the learning process, both inside and outside the classroom. One emerging innovation is the development of digital application-based learning media, which attracts student interest and effectively improves learning outcomes (Herawati & Muhtadi, 2020; Said & Azhar, 2020). Furthermore, one example of technology-based learning is interactive multimedia designed based on a contextual approach (Pradnyawati & Rati, 2023). With the help of technology, abstract and difficult-to-understand concepts can be presented in a visual and interactive format, making it easier for students to understand them more deeply.

The reality in the field through observation and interview activities conducted at SD Negeri 5 Dauhwaru. The observations, especially on learning activities in grade III of SD Negeri 5 Dauhwaru, show that during the implementation of learning at school, the learning process in grade III more often uses conventional learning methods with lectures and assignments. Through the lecture method, teachers deliver material orally and in writing through the whiteboard, and use the help of learning media such as PowerPoint and videos from YouTube displayed through an LCD projector. The main learning source used by students is the theme book provided by the school. In addition, there is no supporting learning media used to help students understand the teaching material in depth and obtain complete material. The results of interviews conducted with the homeroom teacher of grade III A of SD Negeri 5 Dauhwaru showed that one of the obstacles in learning for grade III students of SDN 5 Dauhwaru is that students have difficulty in understanding the Indonesian language learning material, especially the material on the Weather Theme. In this theme, there is material on weather symbols and weather characteristics that are most difficult for students. This is because students need to observe and find information directly with concrete media, not only through text, to understand the material. Meanwhile, grade III students at Dauhwaru 5 Elementary School have less interest and motivation in reading literacy.

Based on the analysis of the knowledge report card scores of third-grade students in the second semester of the 2023/2024 academic year, it can be seen that the Indonesian Language subject has an absorption rate of 79.5% for students in class III A and 76.8% for students in class III B, and has the lowest average score of the six other subjects. This indicates that student learning outcomes in the Indonesian Language subject are quite low. Based on these data, it can also be seen that the KKM for the Indonesian Language subject is 65 with a predicate of C (sufficient). The learning process is carried out using conventional methods in the form of lectures, with the help of learning media in the form of learning videos and student books as learning resources. However, these learning efforts are ineffective because students struggle to understand the material. Moreover, the characteristics of third-grade students are quite diverse; some students are active, quiet, and overall like to learn by looking at interesting, concrete objects such as pictures and videos. To address this problem, a learning medium is needed to accommodate students' diverse learning styles, thereby increasing their motivation and improving their learning outcomes. One learning medium considered effective in helping students learn actively is the E-Fun Thinkers learning medium. E-Fun Thinkers is a digital learning medium developed from the print media Fun Thinkers Book (Aryanti et al., 2023; Wulandini et al., 2022). The fundamental activity in E-Fun Thinkers is the activity of matching answers to questions. In basic education, especially in grade III of elementary school, interactive and fun learning media are crucial. Students at this level require media to stimulate their learning interest and support a deeper understanding of concepts (Jummita et al., 2021a; Riani et al., 2019). One such medium is E-Fun Thinkers, a learning medium that combines educational games to improve students' thinking skills and learning outcomes.

Previous findings indicate that the Fun Thinkers media is effective in helping stimulate student activity in learning activities and helping students understand the material quickly (Jummita et al., 2021a; Wulandini et al., 2022). The E-Fun Thinkers learning media that will be developed have differences in terms of subject selection and also the material that will be included in them. This development will focus on improving the learning outcomes of third-grade elementary school students in the Indonesian subject on the Weather Theme, with the research location being carried out at Dauhwaru 5 Elementary School. The development of this learning media has a novelty in media form, originally a print medium, then upgraded to digital media, which includes a menu of materials and exercises. The E-Fun Thinkers learning media that will be tested uses the 2013 Curriculum and includes the "Weather Theme" material according to the third-grade elementary school student book. This study aims to create an e-fun thinkers learning media based on Smart

Apps Creator 3 on the weather theme to improve the learning outcomes of third-grade elementary school students. This learning media can positively contribute to the world of education and become a reference for teachers in integrating technology into learning.

2. METHOD

This study uses a research and development model, or R&D (Research and Development), with the ADDIE (Analysis, Design, Development, and Evaluation) development model. Research and development is a research activity used to obtain information on user needs, followed by product development (Wardani et al., 2021). This study aims to develop E-Fun Thinkers learning media based on the Smart Apps Creator 3 application on the Weather theme to improve the learning outcomes of third-grade elementary school students. This study uses qualitative analysis methods for non-numerical data, while numerical data is collected using quantitative analysis methods (Riza et al., 2024). Activities carried out in the analysis stage include analyzing student characteristics, curriculum, media, and infrastructure. The design stage is done by determining the hardware and software for product development, designing the product by creating flowcharts and storyboards, preparing components for learning media development, and compiling research instruments. The development stage is carried out by developing the E-Fun Thinkers learning media design that has been designed. Next, testing is carried out by content/learning material experts, learning media experts, teacher/practitioner responses, and student responses. The learning media test was conducted by providing assessment sheets to experts, teachers/practitioners, and students. At the implementation stage, the E-Fun Thinkers learning media was implemented for third-grade students at SD Negeri 5 Dauhwaru. At the evaluation stage, a pre-test and post-test were given to students in grades III A and III B to determine the effect of the E-Fun Thinkers learning media on student learning outcomes. This research was conducted at one of the public elementary schools in Jembrana Regency, SD Negeri 5 Dauhwaru. The subjects of this research were 2 content/learning material experts, 2 learning media experts, 2 practitioners, and 2 classes of third-grade students at SD Negeri 5 Dauhwaru. The object of the research was the E-Fun Thinkers learning media based on the Smart Apps Creator 3 application on the Weather Theme. The data collection methods used were questionnaires and interviews. The instruments used in data collection were questionnaire sheets. The validation instrument grid, practicality, and effectiveness of the E-Fun Thinkers learning media are presented in Table 1, Table 2, Table 3, Table 4, and Table 5.

Table 1. Grid of Material Expert Trial Instrument

No (1)	Aspect (2)	Indicator (3)	Number of Item (4)	Total Item (5)
1	Curriculum	Learning objectives	1,2,3,4	4
		Material delivery	5,6,7,8,9	5
2	Materials	Material relevance	10,11	2
		Material selection	12,13,14,15	4
Total Item				**15**

Table 2. Media Expert Trial Instrument Grid

No (1)	Aspect (2)	Indicator (3)	Number of Item (4)	Total Item (5)
1	Display	Appropriate color selection	1,5	2
		Layout suitability	2,3	2
		Accurate use of letters	4,7	2
		Learning media design	6,8	2
2	Operation	Ease of accessing media	9,10	2
		Clarity of instructions for use	11,12	2
3	Usefulness	Ease of achieving learning goals	13,14	2
		Ease of independent learning	15	1
Total Item				**15**

Table 3. Grid of Practicality Test Instruments by Teachers

No (1)	Aspect (2)	Indicator (3)	Number of Item (4)	Total Item (5)
1	Materials	Appropriateness of material to learning objectives	1	1
		Completeness of learning materials in media	2	1
		Presentation of exercises in media	3	1
		Appropriateness of image selection to material	4	1
		Material delivery	5,6	2

No (1)	Aspect (2)	Indicator (3)	Number of Item (4)	Total Item (5)
		Language use in media	7	1
2	Display	The attractiveness of the media content display	8	1
		The neatness of the media	9	1
		The legibility of the text	10	1
		The clarity of the use of images	11	1
		The media's ability to attract students' interest in learning	12	1
3	Operation	Ease of use	13	1
		Clarity of instructions for use	14	1
		Ease of media access	15	1
		Total Item		**15**

Table 4. Student Response Test Instrument Grid

No (1)	Aspect (2)	Indicator (3)	Number of Item (4)	Total Item (5)
1	Materials	Comprehensive and easy-to-understand material	1	1
		Use of simple language	2	1
		Suitability of material presentation in the media	3,4	2
		Clarity of material delivery in the media	5	1
2	Display	Attractiveness of media content	6	1
		Readability of writing	7	1
		Neatness of media	8	1
		Clear use of images	9	1
3	Operation	Clear and easy-to-implement instructions	10,11	2
		Ease of media access	12	1
4	Benefits	Learning media increases interest in learning	13	1
		Ease of obtaining information and insights	14	1
		Ease of independent learning	15	1
		Total Item		**15**

Table 5. Learning Outcome Instrument Grid

Material	Indicator	Cognitive Level	Number of Item	Total Item
Weather	Identifying different types of weather	C1	1,2,3	3
	Explaining how weather affects daily activities	C2	4,5,6	3
	Distinguishing good and bad weather for specific activities	C3	7,8,9	3
	Name and explain the function of weather equipment	C4	10,11,12	3
	Recognizing and recording daily weather changes	C5	13,14, 15	3
	Total			**15**

Data analysis for the product development stage was conducted using qualitative methods. Conversely, quantitative methods assessed the validity, practicality, and effectiveness of the E-Fun Thinkers learning media based on Smart Apps Creator 3 on the Weather Theme developed. Thus, E-Fun Thinkers based on the Smart Apps Creator 3 Application on the Weather Theme can be an interactive learning aid in implementing learning on the Weather Theme material in grade III of elementary school.

3. RESULT AND DISCUSSION

Result

This research uses a research and development (R&D) model with the ADDIE (Analysis, Design, Development, and Evaluation) development model. This study aims to develop E-Fun Thinkers learning media based on the Smart Apps Creator 3 application on the Weather theme to improve learning outcomes for third-grade elementary school students. The design of this research and development resulted in a product in the form of E-Fun Thinkers learning media developed based on the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation (Wulandari et al., 2021). The things done in the analysis stage are analyzing student characteristics, curriculum, media, and infrastructure. In the design stage, this is done by determining the hardware and software for product development, planning the product design by creating flowcharts and storyboards, preparing

components for developing learning media, and compiling research instruments. In the development stage, this is done by developing the design of the E-Fun Thinkers learning media that has been designed. The final appearance of the E-Fun Thinkers learning media based on the Smart Apps Creator 3 application on the Weather Theme that has been developed can be seen in Figure 1.

Figure 1. Cover View, Introduction, Exercise Content, Material Content, and Closing

Next, a test was conducted by content/learning material experts, learning media experts, teacher/practitioner responses, and student responses. The learning media test was conducted by providing assessment sheets to experts, teachers/practitioners, and students. At the implementation stage, the E-Fun Thinkers learning media was implemented for third-grade students at SD Negeri 5 Dauhwaru. At the evaluation stage, a pre-test and post-test were given to third-grade students A and B to determine the effect of the E-Fun Thinkers learning media on student learning outcomes. The results obtained from each stage that has been carried out are: The results of this development research are to produce a product in the form of E-Fun Thinkers learning media based on the Smart Apps Creator 3 application on the Weather Theme. The E-Fun Thinkers learning media obtained very good validity with an achievement level of 96.5% by content/learning material experts and 93.5% from learning media experts, obtained a practicality level of 95% by teacher/practitioner responses, 99% by students in individual tests, and 97.46% by students in small group tests, obtained a t-count value of 16.207 which means it is greater than the t-table of 2.045 (significance level of 0.05), thus stating that there is a significant influence between before and after the implementation of the E-Fun Thinkers learning media on the learning outcomes of grade III students of SD Negeri 5 Dauhwaru.

Discussion

Based on the research conducted, it is clear that the E-Fun Thinkers learning media has achieved excellent validity. This can be seen from the material and media experts' assessment results. Regarding content/learning material, the E-Fun Thinkers learning media has achieved excellent validity from content/material experts. These results indicate that comic video learning media are suitable for implementation in the learning process. This is supported by the level of material difficulty appropriate to students' cognitive development, clear material sources, material delivery that can attract students' interest in learning, and material presentation delivered sequentially and clearly with an interesting story (Dasi & Putra, 2022). In addition, the language used is appropriate to the characteristics of students and the use of effective sentences, so that students will easily understand the learning. The E-Fun Thinkers learning media is supported by its attractive display and full of easy-to-understand image elements, has attractive colors, and is accompanied by cheerful music. Furthermore, the appropriateness of media illustrations to the learning material can facilitate student understanding (Aditya Dharma, 2019; Apriliani & Radia, 2020; Indirayani et al., 2023). Based on this, the E-Fun Thinkers media is worthy of being a research object, as it has the potential to support the learning process. This potential is evident in its ability to present material clearly, its level of difficulty appropriate to students' cognitive development, and its attractive appearance, thus positively contributing to learning effectiveness (Nurfadilla et al., 2021).

The E-Fun Thinkers learning media can be considered valid based on an evaluation conducted by considering various important aspects in the media validation process, which is specifically designed to suit children's developmental level, especially elementary school students. The first aspect is the media's appearance, where the visual design used is considered attractive, bright, and appropriate for the age and interests of elementary school students. This appearance not only serves as an attraction but also makes it easier for children to access and understand information in a fun way

(Madina & Zulherman, 2023; Wardani et al., 2021). The second aspect is ease of use, which indicates that the media has been designed so that elementary school students can operate it easily without feeling difficult or confusing. Finally, the aspect of media usefulness assesses the extent to which this media provides practical benefits for elementary school students, such as improving their knowledge, skills, and understanding in contexts relevant to their lives (Ningtyas et al., 2020; Riniwanti et al., 2024; Rizkasari et al., 2021). These aspects were evaluated based on recognized guidelines and criteria in media validation literature aimed at student audiences. Regarding the validity test of learning media, the E-Fun Thinkers learning media received excellent validity from media experts. This is supported by the attractive appearance of the E-Fun Thinkers learning media with animated images, supporting accompanying music, reading text that is easy for students to understand, and the suitability of the learning media design to the characteristics of students who tend to prefer cartoon animation. Furthermore, the suitability of the media illustrations to the learning material can also facilitate student understanding (Dasi & Putra, 2022; Pratiwi et al., 2024; Sukarini & Manuaba, 2021; Wardani et al., 2021). Based on this, the E-Fun Thinkers learning media suits the learning process.

The development of the E-Fun Thinkers learning media also considers practicality in its use. The E-Fun Thinkers learning media is used by teachers/practitioners and students. Teachers use the E-Fun Thinkers learning media as a medium in teaching students, and students use this learning media to learn (Hasmalena et al., 2023; Rosmana et al., 2023). In terms of practicality, the comic video learning media obtained a very practical level. This is supported by the clear material used, the level of difficulty appropriate to the students' cognitive development, and the interesting delivery of the material. In addition, using language that is easy to understand and attractive media displays to students can make learning more enjoyable. This shows that the E-Fun Thinkers learning media received a very good predicate/qualification for use in learning. For teachers/practitioners, the E-Fun Thinkers learning media can facilitate the delivery of material to students that is presented interactively according to student characteristics. In addition, the E-Fun Thinkers learning media can also increase student interest in learning and can be used repeatedly. Meanwhile, for students, the E-Fun Thinkers learning media provides a pleasant atmosphere, facilitates understanding of learning materials, increases learning interest, and encourages student activeness in the learning process (Aryanti et al., 2023; Riani et al., 2019; Wulandini et al., 2022). The benefits of the E-Fun Thinkers learning media will increase students' seriousness, curiosity, and activeness in learning.

Several previous research results from reliable sources support this research. The E-Fun Thinkers Book learning media with the theme of Various Jobs and the subtheme of Types of Jobs in learning 1 for fourth-grade elementary school students is adapted to the ADDIE development model (Jummita et al., 2021b; Wulandini et al., 2022). The literacy-based Fun Thinkers Book media is very suitable for use based on the assessment of media experts, material experts, and class teachers, and received positive responses from students (Aryanti et al., 2023; Riani et al., 2019). The active learning model assisted by the Fun Thinkers media significantly influences the learning outcomes of third-grade students on the Weather Theme in Cluster IV (Riani et al., 2019; Wati et al., 2023). Limitations in developing this E-Fun Thinkers learning media are that it cannot be used without a PC/laptop or smartphone because it is digital. In addition, developing this media requires considerable effort and time, because every element, from the material to the design, must be adapted to the characteristics of students' cognitive development.

The implications of the research on developing the E-Fun Thinkers learning media on the Weather Theme are to produce an E-Fun Thinkers learning media product with excellent qualifications. In addition, this research has implications for increasing student interest in learning and improving the quality and outcomes of student learning. Similar learning media have previously been developed, such as printed Fun Thinkers, Electronic Fun Thinkers, and so on, but with different topics, and there has been no development of E-Fun Thinkers learning media on the Weather Theme. The development of this learning media can increase the diversity of learning support media in schools. The E-Fun Thinkers learning media can be used by teachers as an example of developing learning media that utilizes technology.

4. CONCLUSION

The E-Fun Thinkers learning media was created using the Smart Apps Creator 3 application and is valid/suitable for use in learning to improve student learning outcomes. This is seen from the content/material expert assessment, with results of very good validity. The E-Fun Thinkers learning media is effective in improving student learning outcomes. This is seen from the effectiveness test. So there is a significant influence between before and after using the E-Fun Thinkers learning media on the learning outcomes of SD Negeri 5 Dauhwaru grade III students. It is recommended for teachers to use the Fun Thinkers media because it can help students in learning and hone basic skills.

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