

Pop-Up Book Media Assisted By QR Code For Second-Grade Elementary School Students

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ABSTRAK

Guru hanya menggunakan buku dalam kegiatan pembelajaran padahal buku memiliki banyak kekurangan seperti penyajian yang kurang menarik. Siswa juga kesulitan memahami setiap materi serta materi yang disajikan pada buku penjelasannya sangat sedikit. Tujuan penelitian ini yaitu mengembangkan media pop-up book berbantuan QR Code pada tema 8 subtema 1 kelas II sekolah dasar. Jenis penelitian ini yaitu pengembangan model ADDIE. Subjek penelitian yaitu 6 ahli terdiri atas 4 ahli materi, 2 ahli media. Subjek uji coba yaitu 2 praktisi guru, dan 10 orang siswa. Metode pengumpulan data yang digunakan yaitu kuesioner. Instrumen yang digunakan pengumpulan data yaitu rating scale. Teknik analisis data yaitu deskriptif kualitatif dan kuantitatif. Hasil penelitian yaitu penilaian yang didapatkan dari ahli materi yaitu 94% (sangat baik). Penilaian dari ahli media pembelajaran yaitu 95% (sangat baik). Penilaian kepraktisan media yang diberikan oleh guru yaitu 94% (sangat baik) dan siswa 90% (sangat praktis). Disimpulkan bahwa Media Pop-up book Berbantuan QR Code mendapat kualifikasi valid dan praktis sehingga layak digunakan dalam pembelajaran.

ABSTRACT

The teacher only uses books in learning activities even though the book has many shortcomings, such as an unattractive presentation. Students also need help understanding each material; more material is presented in the explanation book. This research aims to develop a pop-up book media with the help of a QR Code on the theme of 8 sub-themes 1 for second-grade elementary school. This type of research is the development of the ADDIE model. The research subjects were six experts consisting of four material experts and two media experts. The test subjects were two teacher practitioners and ten students. The data collection method used is a questionnaire. The instrument used to collect data is a rating scale. Data analysis techniques are descriptive qualitative, and quantitative. The study results are the assessments obtained from material experts, namely 94% (very good). The assessment of learning media experts is 95% (very good). The assessment of the practicality of the media given by the teacher is 94% (very good) and 90% of students (very practical). It was concluded that the QR Code Assisted Pop-up book Media received valid and practical qualifications to be suitable for use in learning.

1. INTRODUCTION

In the 2013 curriculum, learning for elementary school students is known as thematic learning. Thematic learning is learning that uses themes in learning and links several subjects to provide meaningful experiences to students in learning (Xu & Zammit, 2020; Zaki et al., 2020). In thematic learning activities, students are required to actively learn and express their ideas so that learning activities become interesting (Desyandri et al., 2019; Syafrijal & Desyandri, 2019; Wuryani & Yamtinah, 2018). Thus the teacher must create creative and interesting learning that can make students active in learning. Using new learning techniques with good packaging and supported by interesting learning media and facilities can also attract students' attention to learning (Risda Amini et al., 2019; Widani et al., 2019). The success of the learning process cannot be separated from the support of learning media. It is because learning media can help students learn in class or independently (Riani et al., 2019; Sapulette & Wardana, 2016; Sumarsono & Sianturi, 2019). The use of learning media is also very important for elementary school students because children are mature enough to use their operational thinking to

stimulate their attention in learning (Riani et al., 2019; Sumarsono & Sianturi, 2019). It causes learning to require learning media that can attract students' interest (Nugroho & Iqbal Arrosyad, 2020; Ulfah, 2019).

However, the use and development of instructional media have yet to be implemented optimally. Other research also states that teachers must be more creative in developing media (Muskania et al., 2019; Pribadi et al., 2021). In addition, the teacher only uses books in learning activities because books have many disadvantages, such as an unattractive presentation (Asrial et al., 2020; Rasmawan, 2018; Triwahyuningtyas et al., 2020). Evidenced by the results of observations made in Gugus I, Kecamatan Buleleng, it was found that when teachers carry out thematic learning, they rarely use learning media. Students also need help understanding each material; the material presented in the explanation book must be clearer, making them confused. The teacher's lack of understanding in developing innovative media will affect learning activities. Learning activities could be more varied, which makes students bored. Based on the results of the questionnaire distributed to second-grade teachers in Gugus 1, Kecamatan Buleleng, the results are as follows. First, 67% of teachers stated that the material on the 8 themes of safety at home and travel still needed to be extensively presented in textbooks. Second, 67% of teachers stated that the book's material on safety at home needed to be more in-depth. Third, 100% of teachers stated that teachers needed learning media that could explain material in detail. Based on the results of interviews conducted with students, students also felt that the material presented in the learning book needed to be completed. It can be concluded that teachers need to use appropriate innovative learning media.

The solution is to develop learning media that supports the thematic approach learning process. The use of learning media can generate motivational desires and stimulate student learning so that it has a psychological influence on students (Komikesari et al., 2020; Sadimin Sadimin et al., 2017; Sofyan et al., 2019). Media use has several benefits, such as helping to accelerate understanding, clarifying presentations, and learning to be communicative (Astra et al., 2020; Hamid et al., 2017; Seruni et al., 2020). In developing media, this can be done through repackaging information from book modules or the internet related to learning materials. The information collected can be packaged in the form of innovative media. Following 21st-century developments that demand information and communication technology-based learning (Perdana et al., 2017; Setiyani et al., 2020; Silalahi, 2020). One media that can be developed and based on information technology is pop-up media assisted by QR codes. This pop-up media can arouse student enthusiasm for learning and introduce new technology to students (Alviolita & Huda, 2019; Putri et al., 2019). This media can generate three dimensions that can be pulled, touched, or shifted by students to attract students' motivation and interest in learning. In addition, there is a touch of technology in the form of a scan at the end of the evaluation in the form of questions, which can be scanned using a smartphone.

This learning media can also be used in learning activities while playing, making students happy (Sholeh, 2019; Ulfa & Nasryah, 2020). Pop-ups are an interesting form of paper art with a three-dimensional and two-dimensional structure. Pop-up book learning media is considered to have an attraction for students because it presents a visualization of forms made by folding, moving, and appearing so that it will surprise students when they open each page (Anggraini et al., 2019; Masturah et al., 2018; Rusmiati & Nugroho, 2019). The benefit of pop-up book media for students is that it teaches them to respect a book and take good care of it. Second, it allows students to get closer to teachers and parents because the pop-up book has a section that allows students to discuss the material presented in the pop-up book.

Previous research findings also state that pop-up book media enhances creativity and fosters students' imagination in learning (Masturah et al., 2018; Mustofa & Syafi'ah, 2018). Other research also states that pop-up books can foster knowledge and provide descriptions of a particular form of the object (Masturah et al., 2018; Ningtiyas et al., 2019; Ruqoyyah et al., 2020). The advantage of the developed pop-up book media is that it uses a touch of technology to access evaluation questions in the form of a QR Code, which can provide a direct experience to students using smartphones. In addition, this media can also stimulate fine motor skills in students by sliding, opening, and folding so that the muscles in the hands will function properly. Of course, this will give an impression to students and make it easier to remember the material presented through this media. There has been no research study on QR Code-assisted pop-up book media on theme 8 sub-theme 1 class two of elementary school. This research aims to develop pop-up book media with the help of a QR Code on theme 8, sub-theme 1 of second-grade elementary school. It is hoped that the pop-up book media that will be developed can help students learn Thematic.

2. METHOD

This research develops the ADDIE model (Analyze, Design, Development, Implementation, Evaluation) (Cahyadi, 2019). The research subjects were six experts, four material experts, and two media experts. The test subjects included two teacher practitioners and ten students to examine the developed media's validity and practicality. The data collection method is used, namely a questionnaire. This method is carried out by giving several statements to experts regarding pop-up book media, including aspects of attractiveness, material, language, and practicality. The instrument used to collect data is a rating scale using a score range of 5-1. The instrument grid is presented in Table 1 and Table 2.

Table 1. Material Expert Questionnaire

Variable	Indicator	Instrument item number
Material Aspect	The material includes material contained in the Basic Competency.	1,2,3,4,5,6,7,8
	The material reflects the description that supports the Competency Achievement Indicator (GPA). The material presented is according to the ability. The concepts and definitions presented are appropriate. The material presented can solve the problem. The images presented correspond to reality. Compatibility of the material with the latest references. The suitability of the material with the latest science.	
Language Aspect	Accurate sentence structure.	9,10,11,12,13,14
	Sentence effectiveness. Terminology. Grammatical accuracy. Consistency in the use of terms. The language used is clear and easy to understand.	
Learning Aspects	Media follows the intellectual development of students.	15,16,17,18,19,20,21
	The effectiveness of conveying messages or information visually (pop-up book). Increase interest Creates the ability to ask questions Relevant to the material Clarity of instructions for use	

(Modified from Masturah et al., 2018)

Table 2. Media Expert Questionnaire

Variable	Indicator	Total item
Aspects of Physical Attractiveness	The quality of the pop-up book media material.	3
	Pop-up book media security in its use.	
Display Aspect	The physical appeal of pop-up book media.	10
	The form of pop-up book media is proportional.	
	The size of the pop-up book media is proportional.	
	The thickness of the pop-up book media is proportional.	
	The font on the title is attractive and easy to read.	
	Attractive cover illustration.	
	Easy-to-read typeface.	
Learning Aspects	The font size is proportional.	6
	The color of the writing is attractive and appropriate.	
	Clarity of writing	
	The images used are of high quality.	
	Following the intellectual development of students. Effectiveness of message delivery Increase interest Creates the ability to ask questions	

(Modified from Masturah et al., 2018)

The instrument's content validity was assessed by experts using the Gregory formula. The method used in analyzing the data is descriptive qualitative and quantitative analysis. Qualitative descriptive statistical analysis was used to process the data in the form of suggestions from expert reviews. Quantitative descriptive analysis is used to process data in numerical form from expert reviews. The conclusion of the research results uses the accuracy of the PAP conversion. The level of achievement is on a scale of five (Tegeh, 2010).

3. RESULTS AND DISCUSSION

Results

First, analysis. The results of the problem analysis are that when teachers carry out thematic learning, they rarely use learning media. Students also need help understanding each material; the material presented in the explanation book must be clearer, making them confused. The teacher's lack of understanding in developing innovative media will affect learning activities. Learning activities could be more varied, which makes students bored. Based on the results of the questionnaire distributed to second-grade teachers in Gugus 1, Kecamatan Buleleng, the results are as follows. First, 67% of teachers stated that the material on the 8 themes of safety at home and travel still needed to be extensively presented in textbooks. The results of the analysis of student characteristics are that students like learning media that present attractive visual images. The results of the curriculum analysis, namely the media that will be developed according to the learning material in Theme 8 Sub-theme 1 for grade two elementary schools, are presented in Table 3.

Table 3. Basic Competencies and Indicators Used

No	Competency	Competency Achievement Indicators
3.10	Pay close attention to capital letters (God's name, person's name, religion's name) and periods and question marks in the correct sentence.	<p>3.10.1 Explaining the correct use of capital letters, periods, and question marks in sentences.</p> <p>3.10.2 Determine the use of full stops in simple sentences.</p> <p>3.10.3 Determine the use of question marks in simple sentences.</p>

Second, design. The initial activity was to start designing pop-up book media with the help of a QR Code on theme 8, sub-theme 1, for the second grade of elementary school. Apart from designing pop-up book media, he also started designing instruments. The media design stage starts with designing the design using the Adobe Illustrator 2021 application. Then the design is printed, followed by the folding process done manually. The pop-up book being developed has a size of 17.5 cm x 25 cm with a total of 20 pages. The material for making pop-up book media uses ivory 260 paper with thick quality so that the book is not easily damaged. The results of the QR Code-assisted pop-up book media design are presented in Figure 1.



Figure 1. Design of Pop-up Book Media Assisted by QR CODE

Third, Development. This stage is developing a QR Code Assisted Pop-up book media. This media is a learning media in the form of a three-dimensional book, visualized with forms made by folding, moving, and appearing. This technology-based media is in the form of a QR Code, which contains a barcode of evaluation questions related to the material that has been studied by scanning it using a smartphone, questions will appear in the form of a Google Form, which students can work on immediately

and the score can be known. Pop-up book media assisted by this QR Code is made with interesting color pictures following the theme material 8 subthemes 1 for the second grade of elementary school. The results of media development are presented in [Figure 2](#).



Figure 2. Pop-Up Book Media Assisted By QR Code

The QR Code Assisted Pop-up book media is then tested for validity and practicality. The assessment results obtained from material experts were 94% (very good). The assessment of learning media experts is 95% (very practical). The teacher's practical assessment of the media is 94% (very good) and 90% (very practical) for students. It was concluded that the QR Code Assisted Pop-up book media received valid and practical qualifications to be suitable for use in learning. The input given by the expert is first, Adjust the indicators in the pop-up book with the instrument grid indicators, add sentences that are lacking in the material and change 1 question in the math material to make it more effective. Second, fix some of the question editors and answer choices. In general, the material is appropriate. The repair results are presented in [Figure 3](#).



Figure 3. Revision of the Pop-up Book Media Assisted by the QR Code

Discussion

The QR Code Assisted Pop-up book media has valid and practical qualifications to be suitable for learning. It is because, first, the QR Code Assisted Pop-up Book Media makes learning easier for students. In the media, some basic competencies and indicators must be mastered by students to understand more about the benefits of studying the material (Lyashenko & Malinina, 2015; Pribadi et al., 2021). In addition, a touch of technology using the QR Code media can evoke students' understanding because students can access it and carry out independent evaluations to find out students abilities after learning (Chen & Li, 2011; Rahmat et al., 2019). Evaluation can be accessed with their smartphone so students can understand the material well. It will give students a unique impression and experience to v. Learning media can help students learn in class or independently (Riani et al., 2019; Sapulette & Wardana, 2016; Sumarsono & Sianturi, 2019). The use of learning media is also very important for elementary school students because children are mature enough to use their operational thinking to stimulate their attention in learning (Riani et al., 2019; Sumarsono & Sianturi, 2019). The benefits of pop-up book media for students provide opportunities for students to become closer to teachers and parents because the pop-up book has a section that allows students to discuss the material presented in the pop-up book (Masturah et al., 2018).

Second, the QR Code Assisted Pop-up book media is appropriate for use because students' motivation in learning increases. This learning media can also be used in learning activities while playing, making students happy (Sholeh, 2019; Ulfa & Nasryah, 2020). The development of this media begins with designing book samples with attractive and bright color compositions so that students are motivated to

learn. Previous research findings also state that using appropriate colors can increase student motivation (Illahi et al., 2018; Jabar & Ahmad, 2018). In addition, the selection of images is adjusted to the learning topic to attract attention. Appropriate learning topics will attract students' attention to learning (Kuswanto et al., 2017; Permana & Nourmavita, 2017). The media also provides instructions to make it easier for students to use them (Husein et al., 2017; Kartika et al., 2018). This pop-up book explains four materials: Mathematics, Indonesian, PPKn, and PJOK. Pop-up books contain pictures attached to each page that are three-dimensional in shape, giving the impression of being raised and moving when opened. It certainly makes students interested in learning. In addition, there is a QR Code at the end of the pop-up book page, which contains practice questions that students can answer using a smartphone. It increases students' motivation after learning to carry out independent evaluations presented to the teacher (Tamami et al., 2020; Umarella et al., 2019). Pop-up book media has its charm for students because it can present visualizations in forms made by folding, moving, and appearing to give students admiration when they open each page.

Previous research stated that using instructional media could generate motivational desires and stimulate student learning so that it has a psychological influence on students (Komikesari et al., 2020; Sadimin Sadimin et al., 2017; Sofyan et al., 2019). Other findings state that this pop-up media can arouse students' enthusiasm for learning and introduce new technology to students (Alviolita & Huda, 2019; Putri et al., 2019). Media use has several benefits, such as helping to accelerate understanding, clarifying presentations, and learning to be communicative (Astra et al., 2020; Hamid et al., 2017; Seruni et al., 2020). Thus this pop-up book product is declared valid and practically used in the learning process. So that using the pop-up book media assisted by the QR Code can increase students' understanding of the material and arouse student activity. The QR Code-assisted pop-up book media on theme 8 sub-theme 1 differs from other pop-up book media because no one has yet developed similar media on theme 8 sub-theme 1 in the second grade of elementary school. Besides that, the media was developed with attractive images and was made using thick ivory paper to make this pop-up book not easily damaged. The limitation of this research is only up to the practicality of the media, but it is feasible to use because it has received good qualifications. This research implies that pop-up book media assisted by QR codes can be used in thematic learning. Recommend teachers use this media so that it can help students learn.

4. CONCLUSION

The QR Code Assisted Pop-up book media has received very valid and practical qualifications from experts, teachers, and students. It was concluded that the QR Code Assisted Pop-up Book Media is appropriate for learning. The QR Code Assisted Pop-up book media can help elementary school students learn and understand Thematic learning.

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