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Validity and Practicality of Media Using Digital Pop-Up Books in Pancasila Education Learning in Elementary Schools

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A B S T R A C T

This research is motivated by the low use of technology-based learning media in several elementary schools located in Lima Puluh Kota Regency. The technology-based learning media used by teachers is limited to showing images and videos from YouTube. This research aims to develop a valid, and practical digital pop-up book learning for fourth-grade elementary school students. The type of research used is Research and Development with the ADDIE model. The research instruments and data analysis carried out are: 1) validity in the form of product assessment instruments by experts in such subject matter, language, and media; and 2) practicality in the form of teacher and student response questionnaires. The research results show a content validity score of 96%, language validation results of 86%, and media validation results of 96%. In the implementation showed that the digital pop-up book learning media used in the learning process was very practical. Therefore, it can be concluded that this digital pop-up book learning media is very suitable for use in elementary schools.

1. Introduction

Innovation continues to be pursued to benefit human life through the inevitable development of science and technology. The development of science and technology certainly affects various aspects of life, one of which is the world of education. In the era of Society 5.0, education prioritizes the use of technology in learning through online instruction, utilizing technology-based teaching materials such as e-learning, e-modules, and e-books (Fitri et al., 2024). Therefore, there is a need for innovation in the implementation of learning in schools, such as the application of technology-based learning media, which can be a solution to improve the quality of education.

Education needs to continuously adapt to the times because, fundamentally, technological developments are aimed at facilitating various activities, including

the learning process (Trisna, 2019). The use of learning media is one of the important aspects for improving the quality of learning (Adriani & Eliyasni, 2022). By using learning media, teachers can be helped in delivering learning materials that are appropriate for students' characteristics, increasing students' interest in learning, and enhancing students' engagement with the learning materials presented. Through learning media, it is hoped that students will be able to achieve better learning outcomes.

Generally, Hidayah et al (2022)explains that learning media can be divided into three types. First, audio media, which can only be heard or has a sound element, such as radio and voice recordings. Second, visual media, which can only be seen without involving sound elements, for example, pictures, paintings, and photos. Third, audio-visual media, which combines sound and visual elements, such as videos, films, and the like. These three types of learning media can be applied in elementary schools to support classroom-based learning. The development of learning media today is also greatly influenced by technological advancements. The rapid development of global science and technology today affects every field, including the learning process. Students are already accustomed to operating various digital technologies such as computers, tablets, smartphones, and others in their daily activities (Sulastri et al., 2024). Students are more interested in digital technology-based learning compared to learning that relies solely on textbooks. Therefore, teachers can leverage this trend to meet students' learning needs.

Based on a preliminary study conducted by the author through observation, interviews with fourth-grade teachers, and the distribution of student needs questionnaires in five elementary schools in one area of Lima Puluh Kota Regency, it was found that the use of learning media was still not innovative and had not optimally utilized technology. Some schools are already using learning media such as pictures, but they haven't yet utilized technology-based media. As a result, students do not gain broad and up-to-date knowledge in line with the times and technological advancements. In some schools, they only use teacher and student textbooks, so the material presented is often irrelevant to the surrounding environment and the students' daily lives.

Additionally, schools that have already implemented technology-based media still often face challenges in finding engaging learning materials for students. This leads to students being less active in the learning process. The use of technology-based media in learning is also still limited in other schools. The media used is generally just videos from YouTube. This naturally causes students to be less active in the learning process because the media used is still monotonous. Therefore, using digital pop-up books is a suitable choice because they can combine visual, interactive, and narrative elements in an engaging way. This media not only presents material in a more engaging way but also encourages active student participation and facilitates understanding of abstract concepts. Digital pop-up books make students more active in the learning process compared to other learning media previously used.A digital pop-up book is a digital book that contains relevant text appropriate for the learning material. In addition, this book is also equipped with images in the form of movable objects, creating an engaging and impressive

experience for its readers (Kusumawati et al., 2024). With its attractive design, it provides an additional dimension that not only makes it easier to understand the material but also enhances visual appeal in the learning process.

Through the digital pop-up book, students are expected to understand the material more easily, become more active and enthusiastic, and feel happy during the learning process. This digital pop-up book is not only equipped with interesting and standout illustrations but is also specifically designed to capture students' attention. Additionally, several previous studies have also proven that this digital pop-up book can be an alternative digital-based learning medium because it can increase students' interest and understanding of the material being taught (Arif & Pandu, 2023; Astria & Aeni, 2025; Dita et al., 2024; Islami et al., 2024; Susilawati et al., 2024). Therefore, this research will focus on the development of digital pop-up books in elementary school learning.

2. Methodology

The type of research model used in this study is Research and Development. According to Okpatrioka (2023), Research and Development is a method or stage aimed at creating new products or developing and improving existing ones, with the goal of testing the effectiveness of the product. The development model used is the ADDIE model. The stages in the ADDIE development model consist of five steps, namely: 1) Analysis, which focuses on analyzing problems, user needs, and systems for teachers and students; 2) Design, which is the product design stage; 3) Development, which includes product development and creation; 4) Implementation, which is the process of validation testing by experts and product implementation; and 5) Evaluation, which aims to evaluate to improve shortcomings and meet needs so that the product is ready for implementation.

First, the analysis stage. At this stage, the analysis conducted includes curriculum analysis, student characteristics and needs, and learning media. After conducting observations, the author identified that the implementation of learning using digital pop-up books as a learning medium had not yet been carried out in the learning process. Not only that, but student characteristics and the experiences gained during the learning process must also be considered.

The design phase includes several steps in the development of learning media, which involve several activities, starting with the preparation of teaching modules. This is done by examining initial competencies and learning achievements to determine learning materials. The selection of materials was based on facts, concepts, principles, procedures, learning time allocation, learning objective flow, and student assessment instruments. The designed learning media includes several key aspects, namely: (1) A Digital Pop-Up Book containing Pancasila Education material about attitudes and behaviors that reflect the practice of Pancasila in the community; (2) The use of simple language that is easy for students to understand; (3) The selection of fonts and colors that support a more creative learning atmosphere; (4) The combination of colors and writing design that can create an

engaging learning experience; (5) The design of learning media aimed at increasing student learning interest; (6) The presentation of clear and relevant images, videos, and animations to the learning material; (7) The inclusion of quizzes that align with the learning content.

The development stage is a subsequent step aimed at developing interactive multimedia that was previously designed in detail. After the planning for the Digital Pop-Up Book learning media is complete, focusing on Pancasila Education lessons about attitudes and behaviors that reflect the practice of Pancasila in the community, the next step is to conduct validation. Validation by one content expert, one language expert, and one media expert from among the competent lecturers at Padang State University. If the digital pop-up book learning media developed is found to be invalid, revisions must be made to the learning media. However, if the digital pop-up book learning media has been declared valid, it can be used in the learning process. Next, after all validation stages are complete and the media is deemed suitable for use, the media learning product that has been created will undergo an initial trial phase before being implemented at the research site.

The implementation stage is the stage for testing the product in the learning process that was previously designed and validated. The implementation of using the Digital Pop-Up Book learning media began by preparing all the necessary facilities and infrastructure and conditioning the classroom environment. After the preparation steps and equipment availability were complete, the author also applied the developed Digital Pop-Up Book learning media in the learning process. Evaluation is the final stage in the ADDIE model development. The evaluation process aims to assess the development of learning media in the context of its use during instruction. The main focus of this evaluation is to measure the practicality of the learning media, which includes ease of use and the product's suitability when applied in the learning process. During the implementation phase, evaluation was conducted by gathering input from teachers and students through questionnaires. This feedback is used to assess their experience using learning media during the learning activity.

Validity

The validation instrument is used to collect information and assess the validity of the developed learning media (Reinita & Sespen, 2025). This instrument includes several aspects, namely content validation which assesses content suitability, language validation which tests the appropriateness of the language used, and media validation which covers color selection, image placement in learning media, and layout. Based on the results of the digital pop-up book learning media validity obtained, it was analyzed across all aspects presented in table form using a Likert scale.

Table 1. Questionnaire Assessment Scale for the Validity of Learning Media

Score	Category
5	Very Good
4	Good
3	Fair
2	Poor
1	Very Poor

Source: Modified from (Sugiyono, 2019)

Next, to calculate the final validity score data, the formula modified by Sugiono (2009) was used, with the following formula:

Formula: $V = \frac{x}{y}$ x 100 %

Explanation:
V = validity value
x = score obtained
y = maximum score

Table 2. Learning Media Validity Categories

Ppercentage	Category
81%-100%	Very Valid
61%-80%	Valid
41%-60%	Quite Valid
21%-40%	Less Valid
0%-20%	Not Valid

Source: Modification (Vawanda & Zainil, 2023)

Practicallity

The practicality instrument for learning media plays an important role in collecting data regarding the practicality level of the developed learning media. The instruments used in this study consisted of teacher response questionnaires and student response questionnaires. After using the interactive learning media that had been created, both students and teachers were asked to fill out the questionnaires. The purpose of this questionnaire is to assess the practicality of the product developed by the author. The data obtained from teacher and student responses to the learning process will be analyzed by referring to the provisions in the table, using the Likert scale as follows:

Table 3. Teacher and Student Response Questionnaire Assessment Scale

Score	Category
4	Very Agree
3	Agree
2	Disagree
1	Very Disagree

Source: Modified from (Sugiyono, 2019)

The final values from the calculations and questionnaires were analyzed using the formula according to Sugiyono (2019) which is:

Formula: NP = $\frac{R}{SM}$ x 100%

Explanation:
NP: the desired or expected percentage value
R: the score obtained
SM: the maximum score

Furthermore, the practicality category of the learning media can be seen based on the final value calculations presented in the following table:

Table 4. Learning Media Practicallity Categories

Percentage	Category
81%-100%	Very Practical
61%-80%	Practical
41%-60%	Quite Practical
21%-40%	Less Practical
0%-20%	Not Practical

Source: Modification (Vawanda & Zainil, 2023)

3. Results and Discussion

This research resulted in a digital product in the form of an e-book using Pop Up Book Digital for Pancasila Education subjects in grade IV of elementary school. To produce a product that is worthy of research, several processes need to be carried out. An analysis is conducted that focuses on problem analysis, user needs, and systems for teachers and students. The results obtained that the use or application of learning involving technology is still limited to displaying learning videos. Therefore, a product is needed that can help teachers and students to carry out more interesting and enjoyable learning. Next, the design stage, namely the product design stage to be developed. At this stage, the digital product design is carried out to be used in learning. Here are some examples of designs that have been created:

Figure 1. Home page

Figure 2. Main menu

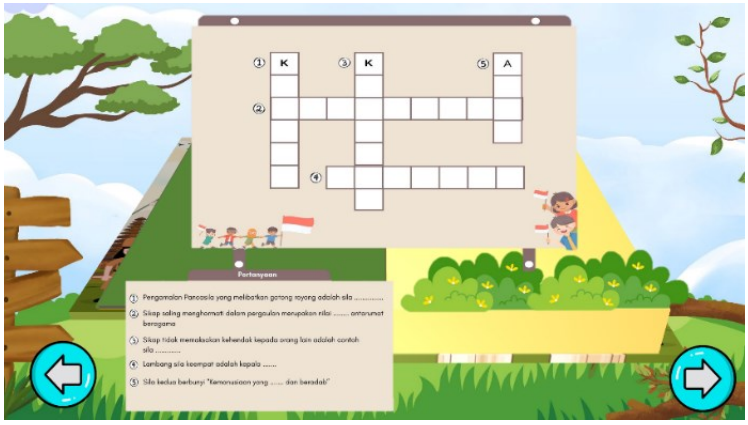

Figure 3. Game display in learning

Based on figures 1, 2, and 3 above, you can see the form of the learning product that was created. The product design was carried out by selecting an attractive appearance and adapting it to the characteristics of elementary school students. This aimed to produce a product that was attractive so that the learning process would not be boring for students. The design was then further refined through a development phase involving experts. This was done to perfect the product so that it was suitable for use in learning. This development stage includes the development and creation of products in the form of learning media.

The learning media that was designed was then validated by validators consisting of content experts, media experts, and language experts. This validation aims to assess the content, appearance, and language suitability of the developed media. After all validators provided input and assessments, the researcher made revisions based on the evaluation results to improve the quality of the learning media. The validity assessment of the Digital Pop-Up Book learning media for Pancasila Education subject in Grade IV, Chapter I, with the topic "Attitudes and Behaviors Reflecting the Practice of Pancasila in the Community", was conducted by lecturers with expertise in each respective field.

Table 5. Material Validation Results Before and After Revision

No.	Assessment Indicators	Score	
		Revision I	**Revision II**
Formulation of CP and TP			
1.	The learning media already contains Learning Outcomes (CP) and Learning Objectives (TP).	4	5
2.	The formulation of CP and TP in learning media is in accordance with the completeness of the material.	4	5
3.	The formulation of CP and TP is in accordance with the depth of the material.	4	4
4.	CP and TP are determined in accordance with the characteristics, curriculum, and profile of Pancasila students.	5	5
5.	The formulation of learning objectives uses sentences that are easy to understand.	4	5
Content Eligibility			
1.	Learning media presents material systematically.	4	5
2.	The material is in accordance with the development of knowledge for the elementary school level.	4	4
3.	The integration between materials in learning media has been seen.	4	5
4.	Images and videos in the media can clarify the material.	4	5
5.	Images and videos in the media are related to the material and are already interesting.	3	5
	Sum	40	48
	Maximum Score	50	50
	Percentage (%)	80%	96%
	Category	Valid	Very Valid

Source : Primary Data 2025

The calculation of the final result of material validation is as follows:

Validation I

$$NP = \frac{R}{SM} \times 100 = \frac{40}{50} \times 100\% = 80\ \%$$

Validation II

$$NP = \frac{R}{SM} \times 100 = \frac{48}{50} \times 100\% = 96\ \%$$

Based on the analysis results (Table 5), it can be concluded that the Pop-Up Digital Book learning media experienced an improvement from the "valid" category to "very valid" after revisions were made based on input from expert lecturers. With a final percentage score of 96%, the media was deemed suitable for use in the next stage of the research implementation, particularly in terms of content feasibility. Furthermore, a language validity test was also conducted. The validation results showed that the product developed by the researcher was declared very valid in terms of language. Nevertheless, the language expert lecturer provided some feedback, namely that there were non-standard words.

After the input was corrected, the learning media was declared suitable and ready for use in the next research phase. The validity test results show a percentage of 86%, which is categorized as "very valid." Based on the analysis results, it can be

concluded that the Digital Pop-Up Book learning media has met the eligibility criteria from a language perspective. With a validity value of 86%, this media is declared highly valid and suitable for use in the next stage of research implementation.

Table 6. Language Validation Results

No.	Assessment Indicators	Score
Effective and efficient use of language		
1.	Digital Pop Up Book Media uses spelling that is in accordance with the EYD V language rules.	4
2.	Digital Pop Up Book Media uses short and straightforward words.	4
3.	Digital Pop Up Book Media uses communicative language.	4
4.	Digital Pop Up Book media uses language that is easy to understand.	5
5.	Digital Pop Up Book media uses sentences that are in accordance with the level of ability of students.	4
Conformity with language rules		
1.	Grammatical accuracy.	4
2.	Determination of the use of prepositions.	5
3.	Accuracy of punctuation marks.	4
4.	Accuracy of word writing.	4
5.	Accuracy of the use of letters.	5
	Sum	43
	Maximum Score	50
	Percentage (%)	86%
	Category	Very Valid

Source : Primary Data 2025

The calculation of the language validation results is as follows:

$$\text{NP} = \frac{R}{SM} \times 100 = \frac{43}{50} \times 100\% = 86\ \%$$

Based on the analysis results (Table 6), it can be concluded that the Digital Pop-Up Book learning media has met the eligibility criteria from a language perspective. With a validity value of 86%, this media is declared highly valid and suitable for use in the next stage of research implementation. The next step was to conduct media validity testing. Based on the validation results at this stage, the developed learning media was declared highly valid by expert lecturers. With these results, the media was deemed to have met the standards of feasibility and was declared ready for use in the implementation phase of the next study.

The validity test results show a percentage of 96%, which is categorized as "very valid." Based on the analysis of the data above, it can be concluded that the digital Pop-Up Book learning media has shown a significant improvement in terms of display quality and design. The final validity score reached 96%, which falls into the "very valid" category, indicating that this media is suitable for use in the next stage of the research implementation.

Table 7. Media Validity Results Before and After Revision

No.	Assessment Indicators	Score	
		Revision I	**Revision II**
Media Display			
1.	Compatibility of the Pop Up Book Digital media with the material.	4	5
2.	The front page cover of Pop Up Book Digital media looks clear and attractive.	4	5
3.	The background on the Digital Pop Up Book media is appropriate and interesting.	4	5
4.	The color and layout of the Pop Up Book Digital learning media are attractive and appropriate.	5	4
5.	The capitalization in the Pop Up Book Digital media is clearly visible.	3	5
Media Usage			
1.	The instructions and buttons in the Digital Pop Up Book media are appropriate.	4	5
2.	Menus or features are easy to understand.	4	5
3.	The transitions between pages are quite fast and do not interfere with the user experience.	4	4
4.	Digital Pop Up Book Media is flexible (can be used independently and guided).	4	5
5.	Animation in the Pop Up Book Digital media adds to the appeal of learning media.	4	5
	Sum	40	48
	Maximum Score	50	50
	Percentage (%)	80%	96%
	Category	Valid	Very Valid

Source : Primary Data 2025

The calculation of the final result of material validation is as follows:

Validation I:

$$NP = \frac{R}{SM} \times 100 = \frac{40}{50} \times 100\% = 80\ \%$$

Validation II:

$$NP = \frac{R}{SM} \times 100 = \frac{48}{50} \times 100\% = 96\ \%$$

Based on the analysis of the data above (Table 7), it can be concluded that the digital Pop-Up Book learning media has shown a significant improvement in terms of display quality and design. The final validity score reached 96%, which falls into the "very valid" category, indicating that this media is suitable for use in the next stage of the research implementation. Based on the results of trials in schools, the digital Pop-Up Book learning media was declared to have a very high level of practicality. The practicality of this medium was assessed through questionnaires given to teachers and students as a response to the use of the medium in the learning process. In the pilot school, teachers gave a practicality score of 90%, while 15 students rated it at 95%. In the implementation school, teachers gave a practicality score of 95%, while 18 students rated it at 97%. Furthermore, in the dissemination school, teachers gave a practicality score of 97.5% and students rated it at 98%. All six results fall into the very practical category. Based on the data obtained, it can be

concluded that the Digital Pop-Up Book media is very practical to use in the learning process. This is supported by the entire percentage of assessment results falling within the range of 81%–100%, which is categorized as "Very Practical". The high level of student enthusiasm during the learning activities also reinforces the fact that this medium is very supportive of the learning process in the classroom. Based on the research results, the digital Pop Up Book learning media developed has met the criteria for feasibility as a valid, effective, and practical medium. This finding also indicates that the use of Digital Pop-Up Books in Pancasila Education learning has a positive impact on the learning process of fourth-grade students at the elementary school level. Throughout the learning process, students showed a high level of interest and enthusiasm for the media used. The learning atmosphere also became more enjoyable, as evidenced by students' active participation in every stage of learning, as well as their ability to work together and discuss effectively in groups.

Based on the results of the development research, it can be concluded that the Digital Pop-Up Book learning media for Pancasila Education subjects, specifically Chapter I Topic A material on "Attitudes and Behaviors that Reflect the Practice of Pancasila in the Community" for elementary school students in grade IV, has met the criteria for validity and practicality. This product is rated as excellent and suitable for use in learning activities, and can be used as a reference for learning media in elementary schools. The research results also show that using digital pop-up books provides various benefits, including increasing students' enthusiasm and motivation to actively participate in the learning process. This is supported by the presentation of interesting images, fun quizzes, and material explanations delivered simply and easily understood by students.

4. Conclusion

Based on the research findings and discussions presented, this study, according to the material validity test results, yielded a score of 96% with a very valid category. The language validation resulted in a score of 86% with a very valid category, and the media validation yielded a score of 96% with a very valid category. Based on the final results of the validity test for the development of the Digital Pop-Up Book media, it is valid and suitable for field testing. The results of the practicality test conducted by the researcher through distributing questionnaires to teachers and students at the pilot school, during implementation and distribution, show that the Digital Pop-Up Book learning media used in the learning process is considered very practical.

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