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Analysis Validation of Interactive Flipbook-Based Teaching Materials to Increase Interest in Learning and The Character of “Gotong Royong” In Primary School Students

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Abstract

This research focuses on developing flipbook-based interactive teaching materials to increase elementary school students' interest in learning and the cooperative character of elementary school students. The background of this research is based on the importance of interactive learning media in improving the quality of education in the digital era, especially in instilling character values such as mutual cooperation. This research aims to test the feasibility and practicality of flipbook-based teaching materials in increasing elementary school students' interest in learning and the cooperative character of elementary school students. This research method uses a quantitative research approach, a type of experimental research. This research is a continuation of last year's research which carried out a needs analysis and created a product draft, at this stage development and dissemination were carried out. The test subjects in this research were teachers and students SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidosermo 1, SD Taquma Surabaya. The data collection technique used was a questionnaire. The research instrument used in this research uses a questionnaire that has been validated by experts and all instruments created have been declared suitable for use by instrument experts. The data analysis technique used uses descriptive statistics. The results show that this flipbook-based teaching material is very feasible and practical, and is able to increase students' interest in learning and the cooperative character of students. It is hoped that this research can become a model for the development of other technology-based teaching materials and contribute to improving the quality of education in Indonesia. The research output in the form of the resulting article will be submitted to an international journal indexed by Scopus as the final output of this research.

Keywords: Flipbook, Character, Gotong Royong, Interest.

Introduction

Research on the development of flipbook-based interactive teaching materials has very important relevance in the current educational context. Rapid technological developments require the world of education to adapt, especially in terms of using learning media that are more interactive and interesting for students. At the basic education level, the use of conventional teaching materials is often unable to facilitate students' interest in learning, especially in cultivating positive characters such as mutual cooperation. Therefore, this research seeks to present a solution through the development of interactive flipbook teaching materials that can integrate technology with character-based learning materials. Mutual cooperation is one of the character values that is very important in the context of education in Indonesia. This character not only plays a role in building an attitude of mutual assistance and togetherness, but also

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teaches about empathy, responsibility and social involvement. However, in reality, the application of the value of mutual cooperation in the school environment is often limited to extracurricular activities and has not been systematically integrated into the formal learning process.

This study aimed to evaluate and validate interactive flipbook-based teaching materials designed for elementary students, focusing on enhancing their learning interest and cooperative character. Cultivating students' interest in learning is essential for achieving educational objectives set by teachers. However, the shift to online learning environments has led to a noticeable decline in student engagement, as reflected in their reduced active participation during lessons (Ramadhani & Siregar, 2021). Students' low learning interest is influenced by various factors. Previous studies have identified the teacher as a key factor affecting student engagement. In many cases, teachers rely solely on government-issued textbooks and student worksheets (LKPD), without incorporating additional learning resources to enrich the teaching process (Putri et al., 2019). One effective way to enhance students' learning interest, as supported by various studies, is through the use of instructional media. Research shows that such media can boost student enthusiasm and help maintain their focus throughout the lesson. The inclusion of visual elements, such as explanatory images and videos demonstrating activities, further increases the appeal and effectiveness of the media (Elpira & Ghufon, 2015). In addition to technology-based media, traditional learning media can also help increase students' interest in learning. The decline in interest during online learning is influenced by both internal and external factors. Internal factors include students' intelligence and attitudes, while external factors encompass the teaching models, strategies, and methods employed by teachers, the quality of teaching materials, and the availability of supporting school facilities. Previous journal studies have also shown that cooperative character development can be fostered through extracurricular activities such as scouting, for example through regular 'Clean Saturday' programs that encourage students to apply the spirit of cooperation in their daily lives and community (Hardianti et al., 2021). There have been no activities to improve the character of mutual cooperation by providing digital teaching materials. Activities to increase students' interest in learning are carried out using think pair share learning models, crossword puzzles, and virtual laboratories. In various studies, no development of flipbook-based teaching materials has been found that aims to increase students' interest in learning and the cooperative character of students. This research is important because of the development of interactive teaching materials because the use of flipbooks has a positive influence because it makes students happy to read books and increases students' learning motivation by having an attractive book display for students.

This research attempts to answer these challenges by designing teaching materials specifically aimed at developing the character of mutual cooperation among elementary school students. The gap between ideal conditions and real conditions. The ideal condition expected in character education in Indonesia is the creation of learning that not only prioritizes cognitive aspects, but also affective and psychomotor aspects, which include instilling character values in students. Ideally, character education such as mutual cooperation can be integrated into all subjects with a comprehensive approach and actively involving students. Character learning should not be monotonous or limited to lectures, but should use innovative and interesting methods. However, real conditions show that most of the character learning processes in schools are still textual and tend to be monotonous. Teachers often have difficulty conveying character values such as mutual cooperation, because the methods and media used do not attract students' interest. In this digital era, students are more interested in interactive visual content compared to less varied texts

or lectures. Therefore, there is an urgent need to provide interactive and contextual learning media, which not only increases students' understanding but is also able to foster positive character in a fun way. Apart from that, the use of technology in learning is still not evenly distributed and optimal. Some teachers still find it difficult to adapt technology into the learning process, especially in designing digital teaching materials that can attract students' interest in learning. This situation creates a gap between modern learning needs and educators' skills in utilizing technology effectively. This research aims to address this gap by developing interactive flipbook teaching materials that are easy for teachers to use and attractive to students, and focuses on improving the character of mutual cooperation. The novelty of this research lies in the integration of interactive flipbook technology with the development of mutual cooperation character values in elementary school students. In contrast to other digital teaching materials which generally focus on delivering cognitive material, the interactive flipbook developed in this research was designed with a character-building approach. Through the use of animation, video and interactive narrative, this flipbook not only conveys information, but also involves students in simulations and scenarios related to the application of the value of mutual cooperation in everyday life. Apart from that, this research also introduces a model for developing technology-based teaching materials which is supported by validation from material experts, media experts, as well as trials on teachers and students. This comprehensive approach aims to ensure that the resulting teaching materials are not only visually attractive but also meet pedagogical standards and can be practically applied in the classroom.

Previous studies on flipbooks also revealed highly positive evaluations from experts, teachers, and students. As a result, the e-module developed using the Kvisoft flipbook application was deemed suitable for use and further development (Wibowo & Pratiwi, 2018). The use of interactive book-based teaching materials remains underdeveloped, largely due to the lack of clear guidelines for teachers in creating flipbooks for elementary students. While previous studies have focused on developing flipbook-based materials to foster cooperative character, this study aims to assess the feasibility and validity of such materials in enhancing students' learning interest. A flipbook itself is a form of traditional animation created from a sequence of images on stacked pages, which when flipped rapidly, produces the illusion of motion (Kurniawan et al., 2015). Another novelty presented is the inclusion of interactive features that allow students to participate actively, such as through quizzes, role-plays and group activities, all of which are designed to strengthen the value of mutual cooperation. This interactive flipbook also provides flexibility for teachers in adapting the material according to student needs. With various multimedia elements, such as videos and interactive illustrations, teachers can modify content according to students' level of understanding, so that the learning process becomes more adaptive and contextual. This makes the teaching materials developed not only innovative in terms of content, but also in terms of flexible use. Overall, the novelty of this research is that it presents an interactive flipbook teaching material model specifically designed to foster the character of mutual cooperation in elementary school students.

This study integrates technological approaches with character education into a unified framework, addressing the need for instructional media that not only imparts knowledge but also fosters students' holistic character development. With this innovative approach, the research aspires to make a meaningful contribution to enhancing the quality of character education in Indonesia and to serve as a reference for future development of technology-based interactive learning media. The main objective of this study is to evaluate the feasibility and practicality of flipbook-based teaching materials in boosting elementary students' learning interest and

Literature Review

Teaching materials are part of learning resources that contain information used by students to achieve learning goals (Cahyadi et al., 2019). The content included in teaching materials is tailored to align with students' learning objectives. Teaching materials can be understood as any type of resource utilized to support the learning process (Rizki & Linuhung, 2017). The definition of teaching materials is any form of material containing systematically arranged material that is used by students to help the learning process achieve specified goals. One type of teaching material is a module.

E-learning has the potential to take the place of traditional classroom instruction by offering greater system interactivity, personalized learning experiences, and sustained student engagement (Bhat et al., 2018). Teaching materials will be easier to use if they are digital in form smartphone. Students will be able to learn easily and can carry out learning activities anywhere independently of the students. One application that can be used for teaching materials is an application flipbook. Flipbook is part of electronic-based teaching materials that attract students. Based teaching materials flipbook Interactive is a digital learning resource that can be used to help students obtain various information digitally. The use of multimedia or digital learning resources helps students process the information obtained. The use of multimedia or digital learning resources helps students process the information obtained.

Flipbook media helps students grasp the material more effectively by presenting content in a visually engaging and appealing format (Aprilia, 2024; Bunari et al., 2024a; Haryanto et al., 2020). Understanding flippingbook is a digital book created by uploading file pdf turned into a book flip online which can be shared and tracked. This application can be seen on the website: <https://flippingbook.com/> (Karajangi, 2022). How to transform digital teaching materials with applications flippingbook with import PDF on the app that, then copy link and share. The advantage of using this application is that you can enter a YouTube video link, video and just share the link you can open the book via smartphone. The downside is that you have to be connected to the internet, if you use the free application it is only valid for 14 days, after that you have to buy it, the account cannot be used again for free if it has been more than 14 days. This application can be seen on the click link <https://anyflip.com>. This application can create flipbook regularly online. The method used to convert PDF teaching materials into flipbooks by entering a PDF file then saving and sharing the link. The advantage of this application is that it is free to use and easy to use. The downside is it can't enter video, sound in this application and must be connected to the internet.

This application can be searched via the link <https://www.flipsnack.com>. Application flipsnack this is the same as the app anyflip. The advantage is easy to use, just with upload PDF files in the application flipsnack, there are templates provided in this application. Using this application is very easy and only takes a short time. Flipsnack is a great solution for magazine/book/module publishers who want to protect the content of the people who created it, but transform it into flipbook which is easy to read. This application can also be opened on Cellphone Android, easy to carry and very simple. This app was launched in 2011. Flipsnack is one of the popular solutions for manufacturing flipbook. Flipsnack has the disadvantage that it cannot input sound, video and images.

This application can be installed on a laptop or computer. Creating teaching materials using this

application is very easy. There are several problems that are often experienced when using this application when inserting videos into the application. Videos entered into this application often cannot be played. This is a drawback of this application. Application Kvisoft Flipbook Maker. Kvisoft Flipbook Marker which is software used to make the appearance of books or other teaching materials into a digital electronic book in the form of a flipbook (Handayani et al., 2020). This application is easy to use and can include video and sound in the digital teaching materials that will be created.

Previous studies have identified a significant correlation between the use of flipbook media and students' learning interest (Bunari et al., 2024a; Insani & Ika Ratnaningrum, 2024; Kusumaningrum & Masruro, 2022). The results of the study indicate that flipbooks are effective in increasing students' learning interest. Development flipbook interactive is a combination of e-book in which there is an interactive video. The use of digital flipbooks is a smart and innovative solution in learning (Abror et al., 2020). Use flipbook is also an innovative solution in enhancing learning in the classroom. Use flipbook will increase students' motivation in learning because elementary school students can interact with the electronic books they have, so it will make it easier for students to learn. Usage flipbook provide different ways to view and experience information. Media interactive is an interactive multimedia object consisting of various formats including text, sound, images, animation, video and graphics (Dewa et al., 2020). Use flipbook will make it easier for students to learn. Based teaching materials flipbook which is packaged in different ways and equipped with pictures, animations, videos, so that it makes students interested in learning and reading. Use of based teaching materials flipbook can improve learning outcomes and students' learning interest. Using flipbook media in learning can improve students' learning outcomes caused by the influence of students' interest in the appearance that is more interesting and interactive than printed books (Hetarion et al., 2019). Usage flipbook in learning can improve student learning outcomes. This is caused by the influence of students' interest in displays that are more interesting and interactive than printed books. The latest presence of technology provides great opportunities for the use of digital books in elementary school learning and distance learning.

Gotong royong or mutual cooperation, is an integral part of Indonesian culture (Humaedi et al., 2025; Latifa & Mahida, 2024). Gotong royong can be understood as a communal social activity, yet its deeper essence reflects a life philosophy that emphasizes the importance of living collectively. This principle has become an integral part of Indonesian culture, as it transcends ethnic boundaries and is embraced by all communities. Several studies have explored the relationship between flipbooks and students' learning interest. However, no research has yet examined the influence of flipbooks on the development of the 'gotong royong' (mutual cooperation) character. The novelty of this study lies in testing the validity of flipbook-based teaching materials specifically designed to enhance the character of gotong royong

Methods

This research uses a quantitative approach with a descriptive quantitative research type. This research is a continuation of previous development research at the develop stage. There are two stages of this research, namely (1) Expert validation (Expert appraisal), expert validation with expert respondents. The purpose of this step is to assess the initial product resulting from the research results and obtain input from experts on based teaching materials flipbook. Expert validation is carried out by giving questionnaires to teaching materials experts and experts in the field of Pancasila Education. Expert validation aims to produce a revised product draft based on

expert input. The next step is to revise the draft to produce a revised draft that is ready to be tested. (2) Development trials (developmental testing). Researchers conducted development trials at three schools to determine the level of feasibility and effectiveness of interactive based teaching material products flipbook which is the result of development.

Subjects were teacher responses and student responses at SDN Siwalankerto 2 Surabaya, SDN Karah 1 Surabaya and SD Kyai Ibrahim Surabaya. Data collection techniques are a method used to collect development research data. The data collection technique used in this research used a questionnaire. A questionnaire is a tool for collecting information by submitting a number of written questions to be answered in writing by the respondent. There are two questionnaires that will be developed, namely: 1) product assessment / expert validation questionnaire. The questionnaire is used to assess products/validate based teaching materials flipbook fourth grade elementary school, 2) questionnaire on students' interest in learning and the character of mutual cooperation. This questionnaire is given before and after using teaching-based materials flipbook in fourth grade elementary school students.

Data analysis in this research was carried out using quantitative analysis techniques. This analysis is adjusted to the type of data obtained from the research results. The data analysis technique for expert validation is carried out quantitatively descriptive and qualitatively descriptive. Descriptive quantitative data analysis by finding averages, percentages and presenting them in the form of bar charts and tables. The final score uses an analysis of the average of the items concerned in the questionnaire, namely by calculating the feasibility score for each aspect of the questionnaire divided by the number of statements.

Based on these criteria, the media is said to be appropriate if the percentage is $\geq 60\%$ from all aspects. The teaching materials developed are still below \geq If the percentage of suitability is 60, revisions will be carried out until the teaching materials developed are suitable for development trials.

Results and Discussion

1. Feasibility Of Based Interactive Teaching Materials Flipbook According to Material Experts

There is a clear conceptual distinction between videos and flipbooks. The Flipbook application presents digital book content with a visually appealing and interactive layout (Syah et al., 2025). Validation of teaching materials by experts is a crucial stage in the process of developing teaching materials to ensure that the content prepared meets pedagogical standards and can be implemented effectively in the field. This validation usually includes several main aspects, namely appropriateness of content, presentation, readability and graphics (Hamed Taherdoost & Lumpur, 2016). Validation of the material expert after the revision is carried out, the Pancasila Education material expert gives a value to the product that has been developed. Expert validator of Pancasila Education material by Mr. Dr. Harmanto, M.Pd, he is a lecturer in Pancasila Education for the PGSD study program at UNESA

Results of feasibility testing of teaching material products from Pancasila education material experts by Dr. Harmanto, M.Pd with indicators can be seen in Figure 1 below:

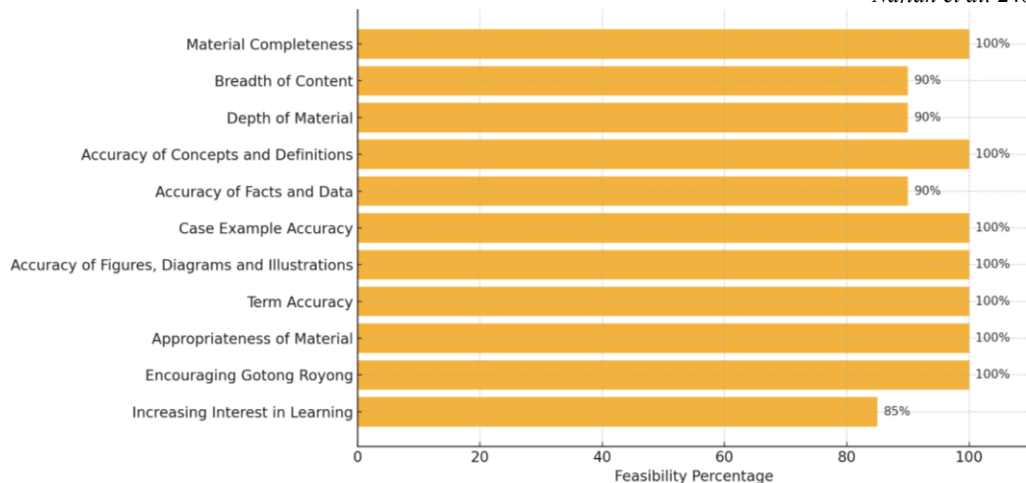


Figure 1 Percentage of Feasibility of Based Teaching Materials Flipbook according to the Pancasila Education Materials Expert

Based on Figure 1 above, in the material completeness indicator, the teaching materials have an appropriateness percentage of 100% with the criteria "very feasible" because they are at $80 < - \leq 100$ with the criteria "very feasible".

Analysis of the results of the percentage of appropriateness of flipbook-based teaching materials according to Pancasila educational material experts shows that overall these teaching materials are very suitable for use. Results of the percentage of suitability of based teaching materials flipbook According to experts, Pancasila educational materials show that overall these teaching materials are very suitable for use. The following is an analysis of the feasibility percentage results for each aspect of teaching materials: A percentage of 90% shows that the breadth of material in teaching materials is very feasible. Breadth of material refers to the extent to which teaching materials cover various relevant aspects and topics in a subject. The wider the coverage of the material, the better students will understand various important aspects of Pancasila education. A percentage of 90% shows that the depth of material in teaching materials is very feasible. Depth of material refers to the extent to which teaching materials provide in-depth explanations and analyzes of certain concepts and topics. With a good level of depth, students can understand the material more deeply and comprehensively. A percentage of 100% indicates that the teaching materials provide very accurate concepts and definitions. The accuracy of concepts and definitions is important to ensure correct understanding and not cause confusion for students. A percentage of 90% shows that the teaching materials present facts and data with a good level of accuracy. Accurate facts and data help strengthen arguments and opinions in teaching materials. A percentage of 100% indicates that the case examples in the teaching materials are very accurate. The use of appropriate and accurate case examples helps students understand the application of concepts in real situations. A percentage of 100% shows that the pictures and illustrations in the teaching materials are very accurate. Appropriate pictures and illustrations help students' visualization and understanding of the material.

A percentage of 100% indicates that the terms used in the teaching materials are very accurate. Using correct terms is important to avoid misunderstandings in learning. A percentage of 100% indicates that the material in the teaching materials is very in line with the goals and curriculum of Pancasila education. The suitability of the material to the learning objectives is very important

to achieve the expected learning outcomes. A percentage of 100% shows that the teaching materials encourage the character of mutual cooperation very well. Encouraging the character of mutual cooperation is an important goal in Pancasila education. A percentage of 85% shows that teaching materials are very feasible in increasing students' interest in learning. Although this percentage is high and considered very feasible, there is still room to increase the level of student interest in learning further. Overall, the results of the analysis show that teaching materials are based flipbook This is very suitable for use in learning Pancasila education.

Previous research also examined the validity of flipbook media and found that a flipbook based on a Knowledge Management System to improve integrity character was highly feasible for use, as evidenced by a 100% validation score from both material and media experts (Fajarianto et al., 2024). These teaching materials cover good breadth and depth of material, and present concepts, facts and data accurately. Apart from that, the use of case examples, pictures, illustrations and appropriate terms also supports students' understanding. The accuracy and suitability of the material to the curriculum as well as encouraging the character of mutual cooperation are added values in this teaching material. Although the level of increasing students' interest in learning reached 85%, this can be further improved through adapting and developing material that is more interesting and relevant for students. By paying attention to the results of this analysis, teaching materials can be improved to achieve more optimal learning outcomes.

Overall, the results of the analysis show that this flipbook-based teaching material is very suitable for use in learning Pancasila education. These teaching materials cover good breadth and depth of material, and present concepts, facts and data accurately. Apart from that, the use of case examples, pictures, illustrations and appropriate terms also supports students' understanding. The accuracy and suitability of the material to the curriculum as well as encouraging the character of mutual cooperation are added values in this teaching material. Although the level of increasing students' interest in learning reached 85%, this can be further improved through adapting and developing material that is more interesting and relevant for students. Content appropriateness is an aspect that assesses the suitability of content to the curriculum and learning objectives. This score shows that the material in the teaching materials is relevant and in accordance with learning needs. Teaching materials that are assessed as "appropriate" in content suitability indicate that the materials have been prepared by taking into account core competencies and learning achievements (Reiser & Dempsey, 2012). By paying attention to the results of this analysis, teaching materials can be improved to achieve more optimal learning outcomes.

2. Feasibility Test Results for Flipbook-Based Interactive Teaching Materials According to Media Experts

The results of expert validation of teaching materials by Mrs. Unik Ambar Wati, S.Pd., M.Pd., P.hD show several inputs and suggestions for improvements to the teaching materials that have been prepared. Teaching materials experts suggest choosing images that are more relevant to the learning context, especially those that depict collaboration in the school and community environment. The images selected must be appropriate to Indonesian culture and context.

Teaching materials experts stated that the messages conveyed in teaching materials were too many and the writing was too small on one page. It is best to make the message content per page simpler and easier to read to improve students' understanding. Use of Images with Indonesian Context: Experts recommend using images that better depict the Indonesian context to provide students with a closer understanding of the environment around them. Teaching materials

experts considered the fonts used in teaching materials to be too "aesthetic" and suggested replacing them with fonts that were more appropriate and easier for students to read. Teaching materials experts argue that the content presented in teaching materials is too little.

It is recommended to develop more content or materials so that learning objectives can be more achieved. Even though the teaching materials have received the "Revision Suitable" category, input from teaching materials experts must be considered and implemented to improve the quality and effectiveness of the teaching materials. By making revisions according to suggestions from media experts, teaching materials will become more relevant, easy to understand and interesting for students. This revision process will help improve the validity and quality of teaching materials so that they can better achieve learning objectives. The role of teaching materials experts in validation is very important to ensure that the teaching materials used are effective in supporting learning and achieving the expected results.

Results of expert validation of Pancasila education material for class IV elementary school by Mr. Dr. Harmanto, M.Pd showed several inputs and suggestions that need to be considered in developing teaching materials. The following is an analysis of the validation: The material expert highlighted that the writing in the flipbook was too dense and needed to be reduced. Reducing dense text will make it easier for students to understand and make teaching materials more interesting. Material experts suggest that non-print-based flipbooks can be used more optimally. The use of certain films and images can increase the interactivity and attractiveness of teaching materials. Experts state that teaching materials for lower grades such as fourth grade elementary school should include more examples and give students opportunities to do something. This will help students be more involved in the learning process. Even though the teaching materials have been declared "Revision Appropriate", input from these material experts is a valuable source of information in developing better teaching materials. Revisions made by following suggestions from material experts will help improve the quality, relevance and effectiveness of teaching materials. Reducing dense text, using non-printed teaching materials, and adding examples and activities will help increase students' interest and understanding of the learning material. The role of material experts in validation is important to ensure that the teaching materials used in learning are in accordance with the content and learning objectives.

By implementing appropriate improvements and revisions, teaching materials will be more appropriate to the characteristics of students and help achieve the expected learning goals. Collaboration with material experts and application of relevant input will produce better and more effective teaching materials in supporting the learning process in the classroom.

Based teaching material products flipbook suitable for use with revisions and the validator provides improvement notes. After getting input from experts, the next step the researcher took was to make revisions according to the input provided before testing. After improvements have been made to the initial development product, the next step is to send the revised product to the validator for an assessment of the feasibility of the development product. The feasibility test for teaching materials products from teaching materials experts was carried out by Unik Ambar Wati, S.Pd., M.Pd., P.hD.

The results of the feasibility test for teaching material products from teaching materials experts by Unik Ambar Wati, S.Pd., M.Pd., P.hD with indicators of content suitability, presentation suitability, readability, graphics can be seen in Table 2 below:

No	Indicator	Feasibility Percentage	Criteria
1	Content feasibility	85%	Very Feasible
2	feasibility of presentation	82%	Very Feasible
3	Readability	84%	Very Feasible
4	Graphics	84,6%	Very Feasible
average percentage		84%	Very Feasible

Table 2 Percentage of Feasibility of Based Teaching Materials Flipbook according to Media Members

Based on Table 2 above, in terms of content feasibility indicators, teaching materials have a feasibility percentage of 85% with the criteria "very feasible" because they are at $80 < - \leq 100$ with the criteria "very feasible". The appropriateness of presentation indicator has a percentage level of 82%, the readability indicator has a percentage level of 84%, and graphics has a percentage level of 84.6%. Average percentage of feasibility of based teaching material products flipbook According to experts, teaching materials have a percentage level of 84% with the criteria "Very Eligible". The same goes for research results previously showed that the validation results carried out by material experts, teaching materials experts and language experts obtained an average score with very good criteria.

The average eligibility percentage of 84% according to teaching materials experts provides assurance that this teaching materials product meets high quality standards and can be relied upon in presenting information effectively to students. The results of previous research which shows a very good average validation score by material experts, media experts and linguists, complete the evidence that this teaching material has undergone a careful and strict validation process. The presence of a multi-disciplinary expert team in the validation process also adds confidence to the quality and effectiveness of this teaching material. Thus, in conclusion, this flipbook-based teaching material is a suitable, comprehensive and professional learning resource, with a focus on appropriate content, presentation, readability and graphics. With the "Very Eligible" criteria and excellent validation results, it is hoped that this teaching material can improve the quality of learning and have a positive impact on student learning outcomes. It is easy to make and cheap, easy to carry anywhere, and can increase students' learning activities (Rahmawati et al., 2017). Another advantage of flipbooks is that they help improve students' mastery of abstract things or events that cannot be presented in class.

3. Practicality Test Results of Flipbook-Based Interactive Teaching Materials According to Teacher Responses

In a large-scale trial to see the practicality of interactive based teaching materials flipbook according to teacher responses, it was carried out at SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidosermo 1, SD Taquma Surabaya. The following are the results of practicality tests based on interactive teaching materials flipbook to increase students' interest in learning and the cooperative character of students according to the teacher's response:

No	Indicator	Feasibility Percentage	Criteria
1	Effective	100%	Very Practical

2	Interactive	90%	Very Practical
3	Efficient	90%	Very Practical
4	Creative	90%	Very Practical
average percentage		93%	Very Practical

Table 3 Percentage of practicality at SDN Margorejo 1 Surabaya

Table 3 above shows the percentage of practicality according to teacher responses at SDN Margorejo 1 on the effective indicator which has a percentage value of 100% with the criteria "Very Practical". The interactive indicator has a percentage value of 90% with the criteria "Very Practical". The Efficient Indicator has a percentage value of 90% with the criteria "Very Practical". The creative indicator has a percentage value of 90% with the criteria "Very Practical". The average percentage value of all indicators of practicality based interactive teaching materials flipbook according to the response of 93% with the criteria "Very Practical".

During the trial at SDN Margorejo 1 Surabaya, Mrs. Z, as a class IV teacher, commented "Teaching materials flipbook are interactive teaching materials based on basic ICT but must be connected to the internet. The flipbook teaching materials are very interesting and complete. "Flipbook teaching materials can be used independently." For suggestions for improvement he suggested "1). teaching materials flipbook can be used interactively if students can also open it themselves using their own devices 2) ICT-based flipbook teaching materials are equipped with an interactive quiz at the end of the lesson. Meanwhile, the conclusion from the teacher's response at SDN Margorejo 1 is that it is practical to use in learning activities.

The following are the results of practicality tests based on interactive teaching materials flipbook to increase students' interest in learning and the cooperative character of students according to the teacher's response at SDN Margorejo VI:

No	Indicator	Feasibility Percentage	Criteria
1	Effective	100%	Very Practical
2	Interactive	100%	Very Practical
3	Efficient	90%	Very Practical
4	Creative	90%	Very Practical
average percentage		95%	Very Practical

Table 4 Percentage of practicality at SDN Margorejo VI Surabaya

Table 4 above shows the percentage of practicality according to teacher responses at SDN Margorejo VI on the effective indicator which has a percentage value of 100% with the criteria "Very Practical". The interactive indicator has a percentage value of 100% with the criteria "Very Practical". The Efficient Indicator has a percentage value of 90% with the criteria "Very Practical". The creative indicator has a percentage value of 90% with the criteria "Very Practical". The average percentage value of all indicators of practicality based interactive teaching materials flipbook according to a response of 95% with the criteria "Very Practical". Furthermore, the average percentage of all indicators of practicality of flipbook-based interactive teaching materials according to teacher responses is 95% with the criterion "Very Practical". From the results of the analysis above, it can be concluded that interactive teaching materials are

based on flipbook received a very good assessment in the practical aspect of the teacher's response. The effective and interactive indicators reach a percentage of 100%, indicating that this teaching material is considered very practical in its effectiveness and interactivity in the learning process. Meanwhile, the efficient and creative indicators reached a percentage of 90%, which is also a high value and shows that this teaching material is considered very practical in terms of efficiency and creativity. The average percentage of practicality of 95% is a very positive result, indicating that interactive teaching materials are based flipbook This overall meets the expectations and needs of teachers in supporting the practicality of its use in the classroom. With these excellent analysis results, interactive teaching materials are based flipbook can be considered as a practical choice in improving the quality of learning at SDN Margorejo VI and helping to improve the learning experience for students

Flipbooks effectively present complex concepts, technology integration significantly benefits student-centered pedagogy but also poses challenges (Usman et al., 2024). During the trial at SDN Margorejo VI Surabaya, Mrs. H, as the fourth grade teacher, commented "The content of the teaching materials is in accordance with the learning objectives." For suggestions for improvement, he suggested "prepare a print out to anticipate the worst." Meanwhile, the conclusion from the teacher's response at SDN Margorejo VI is that it is practical to use in learning activities.

The following are the results of practicality tests based on interactive teaching materials flipbook to increase students' interest in learning and the cooperative character of students according to the teacher's response at Kyai Ibrahim Elementary School:

No	Indicator	Feasibility Percentage	Criteria
1	Effective	90%	Very Practical
2	Interactive	90%	Very Practical
3	Efficient	100%	Very Practical
4	Creative	100%	Very Practical
average percentage		95%	Very Practical

Table 5 Percentage of practicality at SDN Kyai Ibrahim Surabaya

Table 5 above shows the percentage of practicality according to the responses of teachers at Kyai Ibrahim Elementary School on the effective indicator which has a percentage value of 90% with the criteria "Very Practical". The interactive indicator has a percentage value of 90% with the criteria "Very Practical". The Efficient Indicator has a percentage value of 100% with the criteria "Very Practical". The creative indicator has a percentage value of 100% with the criteria "Very Practical". The average percentage value of all indicators of practicality based interactive teaching materials flipbook according to a response of 95% with the criteria "Very Practical". Next, the average percentage of all practicality indicators based on interactive teaching materials flipbook according to the teacher's response it was 95% with the criteria "Very Practical".

From the results of the analysis above, it can be concluded that interactive teaching materials are based on flipbook received a very good assessment in the practical aspect of the teacher's response at Kyai Ibrahim Elementary School. The effective and interactive indicators reach a percentage of 90%, indicating that this teaching material is considered very practical in its effectiveness and interactivity in the learning process. In addition, the efficient and creative

indicators reach a percentage of 100%, which is a very high value. This shows that this teaching material is considered very practical in terms of efficiency and creativity, so that it can help teachers convey learning material effectively and interestingly. The average practicality percentage of 95% is a very satisfactory result and indicates that interactive teaching materials are based flipbook Overall, this really meets the expectations and needs of teachers in supporting the practicality of its use in the classroom. With these excellent analysis results, interactive teaching materials are based flipbook can be considered a very practical option in improving the quality of learning at Kyai Ibrahim Elementary School and helping to improve the learning experience for students.

During the trial at Kyai Ibrahim Elementary School, Surabaya, Mrs. "This teaching material is quite effective and efficient to use to support learning." For suggestions for improvement, he suggested "In animated videos, perhaps two-way conversation could be used. When displaying the information, the font is rather small so it is not clear for students sitting at the back (on the LCD display). "The font display can be made more colorful so that it is more attractive to elementary school children." Meanwhile, the conclusion from the teacher's response at Kyai Ibrahim Elementary School is that it is practical to use in learning activities

The following are the results of practicality tests based on interactive teaching materials flipbook to increase students' interest in learning and the cooperative character of students according to the teacher's response at SDN Sidosermo 1 Surabaya:

No	Indicator	Feasibility Percentage	Criteria
1	Effective	100%	Very Practical
2	Interactive	100%	Very Practical
3	Efficient	90%	Very Practical
4	Creative	100%	Very Practical
average percentage		95%	Very Practical

Table 6 Percentage of practicality at SDN Sidosermo 1 Surabaya

Table 6 above shows the percentage of practicality according to teacher responses at SDN Sidosermo 1 Surabaya on the effective indicator which has a percentage value of 100% with the criteria "Very Practical". The interactive indicator has a percentage value of 95% with the criteria "Very Practical". The Efficient Indicator has a percentage value of 100% with the criteria "Very Practical". The creative indicator has a percentage value of 100% with the criteria "Very Practical". The average percentage value of all indicators of practicality based interactive teaching materials flipbook according to a response of 98% with the criteria "Very Practical". Next, the average percentage of all practicality indicators based on interactive teaching materials flipbook according to the teacher's response it was 98% with the criteria "Very Practical". From the results of the analysis above, it can be concluded that flipbook-based interactive teaching materials are considered very practical by teacher responses at SDN Sidosermo 1 Surabaya. All practical indicators, namely effective, interactive, efficient and creative, received high scores and reached 100% for the effective, efficient and creative indicators, and 95% for the interactive indicators. The average practicality percentage of 98% shows that this teaching material is very suitable for teachers' needs in supporting an effective, interactive, efficient and creative learning process. A very positive response from teachers indicates that the teaching materials are based flipbook this provides real benefits and helps improve the quality of learning in the classroom.

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With these excellent analysis results, interactive teaching materials are based flipbook at SDN Sidosermo 1 Surabaya can be considered as a very practical learning tool to increase students' interest in learning and the cooperative character of students.

During the trial at SDN Sidosermo 1 Surabaya, Mrs. T, as a class IV teacher, commented "Learning on flipbook teaching materials is very practical, interesting for students and the learning is quite good." "This teaching material is quite effective and efficient to use to support learning." For suggestions for improvement, he suggested "Before learning using flipbook teaching materials, we should prepare learning devices, for example laptops, LCDs and other materials." Meanwhile, the conclusion from the teacher's response at SDN Sidosermo 1 Surabaya is that it is practical to use in learning activities

The following are the results of practicality tests based on interactive teaching materials flipbook to increase students' interest in learning and the cooperative character of students according to the teacher's response at Taquma Elementary School:

No	Indicator	Feasibility Percentage	Criteria
1	Effective	100%	Very Practical
2	Interactive	95%	Very Practical
3	Efficient	100%	Very Practical
4	Creative	100%	Very Practical
average percentage		99%	Very Practical

Table 7 Percentage of practicality at SD Taquma Surabaya

Table 7 above shows the percentage of practicality according to the responses of teachers at Taquma Elementary School on the effective indicator which has a percentage value of 100% with the criteria "Very Practical". The interactive indicator has a percentage value of 95% with the criteria "Very Practical". The Efficient Indicator has a percentage value of 100% with the criteria "Very Practical". The creative indicator has a percentage value of 100% with the criteria "Very Practical". The average percentage value of all indicators of practicality based interactive teaching materials flipbook according to a response of 99% with the criteria "Very Practical". Next, the average percentage of all practicality indicators based on interactive teaching materials flipbook according to the teacher's response it was 99% with the criteria "Very Practical". From the results of the analysis above, it can be concluded that interactive teaching materials are based on flipbook It was considered very practical by the teacher's response at Taquma Elementary School. All practical indicators, namely effective, interactive, efficient and creative, received high scores and reached 100% for the effective, efficient and creative indicators, and 95% for the interactive indicators. The average practicality percentage of 99% shows that this teaching material is very suitable for teachers' needs in supporting an effective, interactive, efficient and creative learning process. A very positive response from teachers indicates that the teaching materials are based flipbook this provides real benefits and helps improve the quality of learning in the classroom. With these excellent analysis results, interactive teaching materials are based flipbook Taquma Elementary School can be considered as a very practical learning tool and has the potential to increase students' interest in learning and the collaborative character of students. It is hoped that the use of these teaching materials can continue to be improved and developed to support a better learning process in the future.

During the trial at Taquma Elementary School, Surabaya, Muhammad M as a class IV teacher commented "Flipbook-based teaching materials make learning easier because they combine interesting narratives and interactive videos." "This teaching material is quite effective and can be used efficiently to support learning." For suggestions for improvement, he suggested "Hopefully the knowledge can be passed on to create interactive and fun teaching materials." Meanwhile, the conclusion from the teacher's response at SD Taquma Surabaya is that it is practical to use in learning activities. The following are the results of the percentage of practicality of flipbook-based teaching materials according to teacher responses in five elementary schools in the Wonocolo cluster of Surabaya.

The percentage of practicality based interactive teaching materials flipbook according to the response from teachers at SDN Margorejo 1, it was 93%, the response from teachers at SDN Margorejo VI was 95%, at SD Kyai Ibrahim it was 95%, at SDN Sidosermo 1 it was 98% and at SD Taquma it was 99%. Based on the results of the analysis regarding the practicality of interactive based teaching materials flipbook based on teacher responses in several schools. The average practicality score from five elementary schools in a large-scale trial was 96% with the criteria "Very Practical" according to teacher responses.

The percentage of practicality in SDN Margorejo 1 teaching materials is 93%. This shows that the majority of teachers in this school feel that the teaching materials are interactive flipbook very practical and supports the learning process. The percentage of practicality of teaching materials at SDN Margorejo VI is 95%. The fourth grade teacher at this school gave a high assessment of the practicality of interactive-based teaching materials flipbook, which indicates that this teaching material is effective in supporting classroom learning. The percentage of practicality of teaching materials at Kyai Ibrahim Elementary School is 95%. The fourth grade teacher at this school also gave a positive assessment of the practicality of interactive based teaching materials flipbook, shows that this teaching material is effective in helping the learning process in the classroom.

The percentage of practicality of teaching materials at SDN Sidosermo 1 is 98%. The response of class IV teachers at this school shows a very good level of practicality, so that interactive teaching materials are based flipbook considered very effective in supporting learning. The percentage of practicality of teaching materials at SD Taquma is 99%. The fourth grade teacher at this school gave the highest assessment of the practicality of interactive based teaching materials flipbook, which indicates that this teaching material is very effective and really helps the learning process in class. From the results of the analysis above, it can be concluded that overall, interactive teaching materials are based on flipbook received a very positive assessment from teacher responses in five schools undergoing large-scale trials. A high percentage of practicality indicates that this teaching material is considered effective, efficient and practical in supporting the learning process. Use of based teaching materials flipbook can be considered an excellent choice to improve the quality of learning and support the success of the learning process in these schools.

The suggestions recommended by the five elementary schools are: 1) In animated videos, two-way conversations could possibly be used, 2) On the information display, the font is rather small so that it is not clear for students sitting at the back (on the LCD display), 3) On the display font can be made more colorfull so that it is more interesting for elementary school children, 4) flipbook teaching materials are equipped with an interactive quiz at the end of the lesson.

4. Practicality Test Results of Flipbook-Based Interactive Teaching Materials According to Elementary School Students' Responses

This trial was to determine the practicality of interactive flipbook teaching materials to increase students' interest in learning and the cooperative character of students. Flipbook teaching materials have many advantages, one of which is The use of flipbooks has a significant and positive impact on increasing elementary school students' learning interest (Nafiah et al., 2023). Large-scale trials were carried out at SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidosermo 1, SD Taquma Surabaya with a total of 121 students. The following are the results of practicality tests based on interactive teaching materials flipbook according to students at the five schools:

Usability					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very useful	121	100.0	100.0	100.0

Table 8 Large-Scale Trial Results Practicality of Student Responses Usefulness Indicators

Based on Table 8 above, it shows 121 responses from students from SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidosermo 1, SD Taquma Surabaya on the 100% usefulness indicator stating that it is very useful. Thus the practicality of interactive teaching materials is based flipbook Very useful for class IV students in the Pancasila Education subject. The results of the analysis regarding the usefulness of interactive based teaching materials flipbook based on student responses from several schools in Surabaya. The following is a summary of the analysis: 100% of students at SDN Magerejo 1 stated that interactive teaching materials were based on flipbook very helpful. This shows that students at this school feel significant benefits from using these teaching materials in learning Pancasila Education. 100% of students at SDN Magerejo VI also stated that interactive teaching materials were based flipbook very helpful. This confirms the significant benefits of using these teaching materials in learning Pancasila education. 100% of the students at Kyai Ibrahim Elementary School also consider this school to be interactive teaching materials flipbook very helpful. This shows that these teaching materials also experience significant benefits from using these teaching materials in learning Pancasila Education. 100% of students at SDN Sidosermo 1 stated that interactive teaching materials were based flipbook very helpful. The usefulness of this teaching material can help increase students' interest and cooperative character in the learning process. 100% of the students at SD Taquma this school also stated that the teaching materials were interactive flipbook very helpful. This shows that the teaching materials are effective in arousing interest in learning and providing real benefits for students.

Previous studies have also examined the utilizing a flipbook-based learning module with a STEAM approach in the philosophy of education course effectively enhanced students' scientific attitudes and collaborative abilities (Fuldiaratman et al., 2024). From the results of the analysis above, it can be concluded that the use of interactive teaching materials is based on flipbook provide excellent benefits for students in all schools that are tested on a large scale. The usefulness of this teaching material includes effectiveness in delivering learning material, interactivity that increases interest in learning and the character of mutual cooperation, and supports an efficient and interesting learning process. Use of based teaching materials flipbook in learning Pancasila Education in class IV can be considered a very useful option and is

successful in increasing students' interest and the character of mutual cooperation in Pancasila Education subjects. This teaching material can be an effective tool in improving the quality of learning and learning experiences of students in various schools in Surabaya.

Convenience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very easy	121	100.0	100.0	100.0

Table 9 Results of Large-Scale Trials Practicality of Student Responses Convenience Indicators

Kebermanfaatan

Based on Table 9 above, it shows 121 responses from students from SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidosermo 1, SD Taquma Surabaya on the 100% ease indicator stating that it is very easy. Thus the practicality of interactive teaching materials is based flipbook very easy to use for class IV students in the Pancasila Education subject. The results of the analysis regarding the ease of use of interactive based teaching materials flipbook based on student responses from several schools in Surabaya. The following is a summary of the analysis: 100% of students at SDN Magerejo 1 stated that interactive teaching materials were based on flipbook very easy to use. This shows that the students at this school feel that the teaching materials are easy to use, so they can smoothly access and understand the learning materials: 100% of the students at SDN Magerejo VI also stated that the interactive teaching materials were based on flipbook very easy to use. This confirms that these teaching materials provide a smooth and enjoyable learning experience for students. 100% of students at Kyai Ibrahim Elementary School also consider the teaching materials to be interactive flipbook very easy to use. Students feel that this teaching material makes it easy to access the material and interact with the learning content.

The use of flipbook learning media, heightened learning interest, and strengthened motivation can work synergistically to help students achieve optimal learning outcomes (Bunari et al., 2024b). 100% of students at SDN Sidosermo 1 stated that flipbook-based interactive teaching materials were very easy to use. Students at this school feel comfortable and easy in using this teaching material as a learning tool. 100% of students at Taquma Elementary School also stated that the teaching materials were interactive flipbook very easy to use. This shows that the teaching materials have succeeded in providing an easy and efficient learning experience for students.

From the results of the analysis above, it can be concluded that interactive teaching materials are based on flipbook considered very easy to use by students in all schools in large-scale trials. This ease of use includes good accessibility, intuitive navigation, and simple interactive skills, so that students can easily interact and understand learning content. Use of based teaching materials flipbook in learning Pancasila Education in class IV can be considered a very practical and effective choice, because it makes it easier for students to learn and increases their interest in this subject. These teaching materials make a positive contribution in creating a fun and efficient learning experience for students in various schools in Surabaya.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfaction	121	100.0	100.0	100.0

Table 11 Results of Large Scale Trials Practicality of Student Responses Satisfaction Indicators Satisfaction

Based on Table 11 above, it shows that 121 responses from students from SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidoserma 1, SD Taquma Surabaya on the 100% satisfaction indicator stated that they were very satisfied. Thus the practicality of interactive teaching materials is based flipbook very satisfying for class IV students in the Pancasila Education subject. The results of the analysis regarding student satisfaction with interactive based teaching materials flipbook in Pancasila Education subjects in several schools in Surabaya.

The following is a summary of the analysis: 100% of students at SDN Magerejo 1 stated that they were very satisfied with interactive teaching materials based on flipbook. This shows that students at this school are satisfied with the use of these teaching materials in the learning process: 100% of students at SDN Magerejo VI also stated that they were very satisfied with interactive teaching materials based on flipbook. This confirms that the teaching materials have succeeded in meeting students' expectations and providing a satisfying learning experience: 100% of students at Kyai Ibrahim Elementary School also stated that they were very satisfied with the interactive teaching materials based on flipbook. Students feel that this teaching material is effective in helping them understand the learning material. 100% of students at SDN Sidoserma 1 also stated that they were very satisfied with interactive teaching materials based on flipbook. Students at this school feel very high satisfaction with the use of this teaching material in the teaching and learning process. 100% of the students at SD Taquma also stated that they were very satisfied with the interactive teaching materials flipbook. This shows that the teaching materials have succeeded in creating a satisfying learning experience for students.

From the results of the analysis above, it can be concluded that interactive teaching materials are based on flipbook very satisfying for students in all schools where large-scale trials were carried out. Student satisfaction includes the level of effectiveness, ease of use, and comfort in learning using the teaching materials. Use of based teaching materials flipbook in learning Pancasila Education in class IV received a very positive assessment from students. This shows that this teaching material has succeeded in creating a pleasant and supportive learning environment in increasing students' understanding and interest in learning.

According to the responses of students at SDN Magerejo 1, SDN Magerejo VI, SD Kyai Ibrahim, SDN Sidoserma 1, SD Taquma Surabaya, the usefulness indicator has an average percentage value of 100% with the criteria "Very useful". The ease indicator has an average percentage value of 100% with the criteria "Very easy". The satisfaction indicator has an average percentage value of 100% with the criteria "Very satisfied". The average value of all indicators of practicality based interactive teaching materials flipbook According to the responses of students at five large-scale trial elementary schools, the percentage level was 100% with the criteria "very practical". From the results of the analysis above, it can be concluded that interactive teaching materials are based on flipbook received a very high assessment from student responses in all schools that were tested on a large scale. Students from SDN Magerejo 1, SDN Magerejo VI,

SD Kyai Ibrahim, SDN Sidosermo 1, and SD Taquma gave consistent assessments with an average score of 100% for all practical indicators. The ease of accessing and using these teaching materials was given an average score of 100% with the criteria "Very Easy". Apart from that, the usefulness of this teaching material also received a high assessment with an average score of 100% and the criteria "Very Useful". The level of student satisfaction is also very high, which shows that these teaching materials meet their expectations and provide a satisfying learning experience for them. With the results of this excellent analysis, it can be concluded that interactive teaching materials are based on flipbook very effective and practical in supporting students' learning process. The use of these teaching materials has succeeded in creating a learning environment that is efficient, enjoyable, and provides real benefits for students from various schools in Surabaya.

Media that has lots of illustrations will also arouse elementary school students' interest in learning "... elementary school students have an interest in interesting learning media with images will be able to attract the attention of students. The more illustrations, the more interesting it is for students and easier to understand" (Aulia & Wuryandani, 2019) . Elementary school students basically need interactive media, which has lots of graphic illustrations and is easy for students to understand. Use of digital books based flipbook Very suitable for the characteristics of elementary school students who like pictures and are interactive.

The use of electronic learning will likely replace classroom learning by increasing the interactivity and personalization of systems, and by continuing to engage students." The possibilities of E-Learning replacing classroom learning to enhance system interactivity and personalization and for the continuous engagement of the learners (Bhat et al., 2018). One use of creative media is flipbook media which is a development of e-books as an alternative learning media (Diani et al., 2018). Usage flipbook interactive will increase students' creativity because of Flipbook is a type of classic animation made from a stack of paper resembling a thick book, on each page the process of something is depicted which will later appear to be moving or animated (Kurniawan et al., 2015). In flipbooks, books are presented attractively with animation and can be stored on a cellphone or laptop so it is not heavy to carry the book.

Usage Flipbook provide different ways to view and experience information. Interactive media is an interactive multimedia object that consists of various formats including text, hypertext, sound, images, animation, video and graphics. (Dewa et al., 2020). Usage flipbook will make it easier for students to learn because the books are packaged in different ways and equipped with pictures, animations, videos so that they make students interested in learning and reading.

Development flipbook interactive is a combination of e-book in which there is an interactive video. The use of digital flipbooks is a smart and innovative solution in learning (Abror et al., 2020). Usage flipbook is also an innovative solution in enhancing learning in the classroom. Use flipbook will increase student motivation in learning because elementary school students can interact with the electronic books they have, so it will make it easier for students to learn. The use of electronic learning will likely replace classroom learning by increasing students' continuous interaction and involvement in learning." The possibilities of E-Learning replacing classroom learning to enhance system interactivity and personalization and for the continuous engagement of the learners (Bhat et al., 2018). One use of creative media is media flipbook which is a development of e-books as an alternative learning media (Diani et al., 2018). Use flipbook interactive will increase students' creativity because flipbook is a type of classic animation made from a stack of paper resembling a thick book, on each the page the process of

something is described which will later appear to be moving or animated. On flipbook The book is presented attractively with animation and can be saved in cellphone/smartphone or laptop, so it's not heavy to carry books. Digital-based learning with applications flipbook needed to help students become more active in learning and achieve academic achievement at school.

Usage flipbook provide different ways to view and experience information. Media interactive is an interactive multimedia object consisting of various formats including text, sound, images, animation, video and graphics (Dewa et al., 2020). Use flipbook will make it easier for students to learn. Based teaching materials flipbook which is packaged in different ways and equipped with pictures, animations, videos, so that it makes students interested in learning and reading.

Use of based teaching materials flipbook can improve student learning outcomes and interest in learning. Using flipbook media in learning can improve students' learning outcomes caused by the influence of students' interest in the appearance that is more interesting and interactive than printed books(Hetarion et al., 2019). Usage flipbook in learning can improve student learning outcomes. This is caused by the influence of students' interest in displays that are more interesting and interactive than printed books.

Apart from increasing students' interest in learning, it also increases students' mutual cooperation character. Instilling the value of mutual cooperation by carrying out joint activities at home and receiving direction or guidance from the coach, the project is via the YouTube channel (Hardianti et al., 2021). Internalizing the character value of mutual cooperation can build social capital which includes trust (trust), network (network) and norms (norm) with sub-values of cooperation, deliberation, problem-solving discussions, mutual help, empathy, anti-discrimination, anti-violence, so that these values become part of oneself (Prasetyo, 2018). The application of the values of mutual cooperation can build students' social modes in the form of values of trust, networks, norms. In instilling the values of mutual cooperation in previous research, the sub-values of cooperation, deliberation, discussion, problem solving, mutual help, and anti-discrimination were used. By strengthening the character of mutual cooperation in students, students' social attitudes will be formed.

Based teaching materials flipbook Interactive learning on Pancasila Education subjects has significant benefits in improving students' learning experience. Through interesting and interactive learning experiences, students can increase students' interest in learning, and students' mutual cooperation character and its application in everyday life. By utilizing this technology effectively, Pancasila education can become more interesting, relevant and impactful in increasing students' interest in learning and forming students' character as the next generation of the nation, especially the character of mutual cooperation

Conclusion

The results show that this flipbook-based teaching material is very feasible and practical, and is able to increase students' interest in learning and the cooperative character of students. It is hoped that this research can become a model for the development of other technology-based teaching materials and contribute to improving the quality of education in Indonesia. Flipbook-based interactive teaching materials to increase students' interest in learning and cooperative character are very suitable for use according to media experts and material experts. This can be seen from the results of the feasibility test carried out on media experts stating that the teaching materials developed are very suitable for use with a feasibility percentage of 84%. The results of the feasibility test by Pancasila Education material experts stated that flipbook-based teaching

materials were very suitable for use with a feasibility percentage of 96%. Flipbook-based interactive teaching materials to increase students' interest in learning and cooperative character according to the teacher's response are very practical to use. This is proven by the average percentage value of all indicators of the practicality of flipbook-based interactive teaching materials according to the teacher's response at SDN Jemursari 1, which is 98% with the "Very Practical" criterion in the small-scale test according to the teacher's response. The practicality of flipbook-based interactive teaching materials according to the teacher's response at SDN Margorejo 1 was 93%, the response from teachers at SDN Margorejo VI was 95%, at SD Kyai Ibrahim was 95%, at SDN Sidosermo 1 was 98% and at SD Taquma was 99%. The average value of practicality according to the responses of teachers from five elementary schools in large-scale trials was 96% with the criteria "Very Practical". The average value of all indicators of the practicality of flipbook-based interactive teaching materials according to student responses in small-scale trials is 100% with the criteria "very practical". The average value of all indicators of practicality of flipbook-based interactive teaching materials according to student responses at five large-scale trial elementary schools has a percentage level of 100% with the criteria "very practical".

For future studies, it is recommended to conduct broader trials across various elementary school levels and different regions to ensure the general effectiveness of the flipbook-based teaching material. Collaboration with local education authorities is essential to support the widespread distribution and adoption of this flipbook. In addition, it is necessary to integrate the flipbook into the school's Learning Management System (LMS) to allow broader access, including at home. This integration will enhance the flexibility and usability of the teaching material, supporting both in-class and distance learning environments.

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Author Contribution

Nafiah, Syamsul Ghufuron, Sri Hartatik, and Pance Mariati were involved in formulating the concept, gathering and processing data, as well as in the writing and revision of the manuscript

Conflict of Interest

The authors declare that there are no conflicts of interest related to this article. All authors bear full responsibility for the content presented

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