E-Book Teaching Materials in the Form of PjBL Model Flipbooks Improve Pancasila Education Learning Outcomes

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Abstrak

Guru belum mengembangkan bahan ajar digital secara optimal, dan model pembelajaran yang digunakan kurang bervariasi sehingga berdampak pada hasil belajar siswa yang rendah. Tujuan penelitian ini yaitu mengembangkan bahan ajar e-book berbentuk flipbook dalam model PjBL guna meningkatkan hasil belajar Pendidikan Pancasila. Jenis penelitian ini yaitu penelitian dan pengembangan (R&D) dengan menggunakan model ADDIE. Subjek penelian ini yaitu 1 ahli materi pembelajaran dan 1 ahli media pembelajaran. Subjek uji coba yaitu berjumlah 28 siswa. Metode yang digunakan untuk mengumpulkan data yaitu yaitu metode tes dan non tes (wawancara, observasi, angket, dan dokumentasi). Instrumen pengumpulan data penelitian adalah lembar wawancara, angket, dan soal pilihan ganda. Teknik yang digunakan untuk menganalisis data yaitu analisis deskriptif kualitatif, kuantitatif, dan statistik inferensial. Hasil penelitian yaitu penilaian dari ahli materi sebesar 88.8% (sangat layak) dan ahli media dengan persentase 93.3% (sangat layak). Hasil uji uji t-test menunjukan bahwa terdapat perbedaan hasil belajar siswa setelah menggunakan bahan ajar e-book berbentuk flipbook dalam model PjBL. Hasil uji N-Gain mendapatkan kategori tinggi. Disimpulkan bahwa bahan ajar e-book berbentuk flipbook dalam model PjBL sangat layak dan efektif diterapkan dalam proses pembelajaran guna meningkatkan hasil belajar peserta didik pada mata pelajaran Pendidikan Pancasila Kelas IV materi keragaman budaya Indonesia.

Kata Kunci: Bahan Ajar, Flipbook, PjBL, Hasil Belajar

Abstract

Teachers need to develop digital teaching materials optimally, and the learning models used are less varied, resulting in low student learning outcomes. The intent of this research is to establish e-book teaching materials in the kind of flipbooks using the PjBL model, with the intention of enhancing the learning outcomes of Pancasila Education. This type of research is research and development (R&D) using the ADDIE model. The subjects of this research are 1 learning material expert and 1 learning media expert. The test subjects are 28 students. The data collection methods used include both test and non-test methods (interviews, observation, questionnaires, and documentation). The research data collection instruments were interview sheets, questionnaires, and multiple-choice questions. The methods used during data analysis are qualitative descriptive analysis and quantitative and inferential statistics. The research results were that the assessment from material expert was 88.8% (very feasible), and media expert had a percentage of 93.3% (very feasible). The t-test results show disparities in student learning outcomes after using e-book teaching materials in flipbooks in the PjBL model. The N-Gain test results were within the high category. The conclusion was reached that e-book teaching materials in the kind of flipbooks in the PjBL model are very feasible and practical to apply in the learning process to posper student learning outcomes in the Class IV Pancasila Education subject on Indonesian cultural diversity.

Keywords: Teaching Material, Flipbook, PjBL, Learning Outcomes

1. INTRODUCTION

Every human needs education so that all their potential can be fully developed. Education is a shemed and structured effort dedicated to providing an environment and learning process that maximizes the full capabilities of students. (Diputera et al., 2022; Nafrin & Hudaidah, 2021; Rohmani et al., 2021). Education is a valuable and strategic long-term investment for human life. Education can be utilized to help create a more advanced and high-quality nation. (Bunda & Junaidi, 2021; Fania et al., 2021). Education has the potential to develop a new generation of Indonesian citizens who has enhanced skills and knowledge in their particular fields of specialization, hence enabling the country to progress and thrive

on a global scale. Education includes not just the acquisition of knowledge and learning materials, but also includes all aspects of human growth and potential. (Nufus, 2022; Suwartiningsih, 2021).

The education curriculum is an assortment of regulations that determine the goals, materials, content, and methods utilized in the learning process to accomplish particular goals. (Khairi et al., 2021; Nahdi et al., 2021; Sutrisno et al., 2021). Currently, the Independent Curriculum is being used in education in Indonesia. One of the subjects in elementary schools contained in the Merdeka Curriculum is Pancasila Education (Diputera et al., 2022; Muhammad, 2022). Pancasila education is a mandatory subject from elementary school to university level. Pancasila education is expected to help students develop better values, morals, and attitudes or behavior by the rules and norms that apply in everyday life (Diputera et al., 2022; Febriyanti & Sulistyawati, 2024; Lubis & Najicha, 2022; Muhammad, 2022). Pancasila education subjects have a very important role in broadening students' cognitive, psychomotor and affective insight.

Nonetheless, an ongoing concern persists as numerous students remain experiencing obstacles while learning Pancasila Education. This is supported by previous findings which state that many students still get low Pancasila education learning outcomes (Hamzah et al., 2022; Kusumawardani et al., 2021). Other research also indicates that the poor learning outcomes in Pancasila Education might be due to a lack of learning materials that facilitate student learning. (Buchori et al., 2017; Khairunnisa & Apoko, 2023). The interviews done with class IV teachers at SDN Tugurejo 01 revealed several issues, including the unsatisfactory learning outcomes in Pancasila Education among several students. This is a result of the narrow variety of teaching materials and learning models that teachers employ during classroom activities. Class IV teachers only use teaching materials from worksheets and textbooks. Teachers have not used technology efficiently to develop teaching materials, allowing students to gain a greater knowledge and boost their interest and learning outcomes. This results in poor student learning outcomes.

One solution offered is to develop digital teaching materials that can assist students learning and create a new learning environment that is fun for students. Technology can be used to develop teaching materials as an important learning resource to support the learning process (Chairudin & Dewi, 2021; Muharni et al., 2021). The lack of teacher innovation in utilizing technology to develop teaching materials can result in learning objectives not being achieved optimally and low student learning outcomes (Alwi et al., 2023; Purwanto & Risdianto, 2022). If teachers only use conventional teaching materials and do not develop them innovatively, the quality of learning will decrease. Teaching materials are a group of various learning resources processed and arranged systematically based on the applicable curriculum, competencies, and learning objectives to be achieved (Afifah et al., 2019; Sunarti & Rusilowati, 2020). Teaching materials are applied by teachers as learning resources to convey information, concepts and knowledge to students. Learning materials can be in the kind of images, text, audio, video, and other formats that help students comprehend the material taught by their teacher. Teaching materials are an important element in the learning process, which includes many things that are used to expand students' knowledge and learning experiences (Afifah et al., 2019; Musaddat et al., 2021; Putri et al., 2018; Sunarti & Rusilowati, 2020). The lack of innovation in the development of teaching materials means that learning objectives are not achieved optimally, causing student learning outcomes to be less than optimal.

One of the teaching materials that can be developed is PjBL Model Flipbook E-Book Teaching Materials. E-book teaching materials can be used as problem solvers in creating a fun and interesting learning environment for students (Amalia et al., 2021; Lawson-Body et al., 2020). Using e-book teaching materials, such as flipbooks, can improve learning process.

Flipbooks, as digital sheets, contain learning material enriched with text, photos, and learning videos intended to make the learning environment more charming and enjoyable (Evenddy et al., 2021; Fonda & Sumargiyani, 2018). Using flipbooks in the learning process can provide several advantages, including enhancing the learning environment with vibrant visuals that increase student comfort and prevent boredom during learning activities. (Hiralda & Zulherman, 2023; Sa'diyah, 2021). Besides developing teaching materials, integrating learning models into teaching materials is also needed to support the learning process. Project Based Learning (PjBL) is an in-depth investigation of a topic in the real world (Guo et al., 2020; Hujjatusnaini et al., 2022). PjBL is a learning model that allows students to explore their knowledge and abilities by creating projects based on real-world problems that are in line with the learning material and competencies they have (Ningtyas & Jati, 2018; Syafrijal & Desyandri, 2019).

Previous research findings state that teaching materials are very important for students because they facilitate students'independent learning (Permana & Manurung, 2020; Taqiyyah et al., 2017). Other research also stated that well-developed E-books can significantly improve student learning outcomes (Rusli & Antonius, 2019; Tambunan et al., 2020). However, there has been no study regarding E-Book Teaching Materials in the form of the PjBL Flipbook Model on Pancasila education materials. Based upon that, this research aims to posper PjBL Model Flipbook E-Book Teaching Materials on Pancasila education material. The advantage of the E-Book Teaching Material in Flipbook Form that will be developed is that it presents Pancasila educational material in full and combined with clear and supportive images so that it can make it easier for students to learn. The development of the PjBL Model Flipbook E-Book is expected to assist students in their learning process, hence leading to improved student learning outcomes.

2. METHODS

The type of research carried out by researcher is research and development (R&D). This research used the ADDIE model, including five stages: analysis, design, development, implementation, and evaluation. In the first stage, an analysis was carried out of the learning process, student characteristics, curriculum, and lesson materials in Pancasila Education in class IV SDN Tugurejo 01. The results of the analysis done by researcher will be used to solve various problems found in the field so researcher can find out what products are suitable to be developed in the Pancasila Education learning process in class IV at SDN Tugurejo 01. The design stage was carried out by designing e-book teaching materials in the kind of flipbooks in the PjBL model on Indonesian cultural diversity material in accordance with the results of the teacher and student needs questionnaire as well as the existing curriculum. Applies. The development stage carried out the development of flipbook teaching materials in the PjBL model in accordance with the design that had been made at the design stage and validity testing from experts. The evaluation stage involves giving pretest and posttest questions to students. At this stage, product effectiveness testing is carried out.

This research was conducted at SDN Tugurejo 01 Semarang City. The subjects of this research were 1 learning materials expert and 1 learning media expert. Class IV students at SDN Tugurjeo 01 were the samples in this research. This research data was obtained from various subjects such as class teachers, 6 students in class IV A, 28 students in class IV B. The methods used to collect data were test and non-test methods. The test method is used to collect data regarding student learning outcomes. Non-test methods consist of interviews, observation, questionnaires, and documentation. Observations and interviews are used to collect data in the field regarding existing problems. The questionnaire method is used to collect data provided by experts and students regarding the products being developed. The

documentation method is used to collect students' names and their learning outcomes in the knowledge aspect. The instruments used in collecting research data were interview sheets, a product needs questionnaires, multiple choice pretest, and posttest questions, expert validator assessment questionnaires, and product use response questionnaires to consider the suitability of the teaching materials that the researcher had determined. The questionnaire instrument grid in this research can be sighted in Table 1, Table 2, and Table 3.

Table 1. Grids of Feasibility Instruments by Material Experts

No.	Aspect	Indicator	Item Number
1	Material Suitability	The material in line with learning outcomes	1
		The material in line with learning objectives	2
		The material is in line with the intellectual development of learners	3
		The material is in line with the emotional development of learners	4
		The images contained in the flipbook are in line with the material	5
		The text contained in the flipbook is in line with the material	6
		Evaluation questions are in line with the learning material	7
2	Complete ness of Material	Breadth of material in line with learning outcomes and objectives	8
		Concepts and definitions in the material are easily understood by learners	9
		The data and facts presented in the material are correct and appropriate	10
		The material is modified so that it is more easier to understood by students	11
3	Material Feasibility	The material contained in the flipbook is easily understood by students	12
		The material contained in the flipbook can add insight to students	13
		The material contained in the flipbook can improve the cognitive abilities of students	14
		The material contained in the flipbook can foster students' interest in learning	15
4	Linguistic s	The language used is clear and easy to understand	16
		Spelling accuracy	17
		Accurancy of sentence structure	18
		Rigor of the language used	19
		The language used is appropriate for the students' cognitive development level	20

Table 2. Grids of Feasibility Instruments by Media Experts

No.	Aspect	Indicator	Item Number
1.	Compatibil ity	The material in line with learning outcomes	1
		The material in line with learning objectives	2
		Evaluation questions are in line with the learning material	3

2.	Display	Design of e-book teaching materials in the kind of flipbooks on students' learning interest	4
		Design of e-book teaching materials in the form of flipbooks on student curiosity	5
		Accuracy of image usage	6
		Accuracy of color usage	7
		The text presented can be read clearly	8
		Mix of text, colors, and images	9
		Selection and use of font types	10
3.	Ease of Use	Ease of learning activities	11
		Ease of understanding the material	12
		Properties of flipbooks	13
		The instructions for using the flipbook are clear, complete, and easy to understand	14
		The usage of flipbooks is in line with the developmental level of students	15

Table 3. Grids of Teacher and Learner Responses to E-Book Teaching Materials in the Form of Flipbooks in the PjBL Model

No.	Aspect	Indicator	Item Number
1.	Quality and presentation of material	Display of teaching materials	1, 2
		Image, text, and color display	3, 4, 5
		Instructions for use	6, 7
2.	Language and readability of the material	Use of language in teaching materials	8, 9
3.	Presentation of material content	Presentation of material	10, 11, 12, 13
		Presentation of practice questions	14, 15

The instrument developed is then tested on the instrument to find out what its quality is. The test phase of the question instrument that the researcher had developed was tested on 28 students. Data analysis uses the Microsoft Excel application to test the validity, reliability, distinguishing power, and difficulty level of the question instruments. The techniques used to analyze data are qualitative descriptive analysis, quantitative and inferential statistics. Qualitative descriptive analysis is used to manage data in the form of input provided by experts regarding PjBL Model Flipbook E-Book Teaching Materials. Quantitative descriptive analysis is used to manage data in the form of scores given by experts regarding PjBL Model Flipbook E-Book Teaching Materials. Inferential statistical analysis is used to test the effectiveness of PjBL Model Flipbook E-Book Teaching Materials in improving student learning outcomes.

3. RESULTS AND DISCUSSION

Result

The research has resulted in e-book teaching materials in the form of flipbooks, using the Project Based Learning (PjBL) model. These materials focus on Indonesian cultural diversity and intend to enhance the learning outcomes of fourth-grade students at SDN Tugurejo 01. This research used research and development (R&D) with the ADDIE model, which contains of analysis, design, development, implementation, and evaluation stages.

The first stage is an analysis of the learning process, characteristics of students, curriculum, and subject matter in Pancasila Education in class IV SDN Tugurejo 01. The

results of the analysis that have been undertaken by researcher will be used to solve various problems found in the field, so that they can find out what products are apposite for development in the Pancasila Education learning process in class IV SDN Tugurejo 01. This analysis stage uses interviews and observation methods. Researchers conducted interviews directly with the fourth-grade teacher of SDN Tugurejo 01 to obtain accurate information related to the learning process of Pancasila Education in class IV SDN Tugurejo 01. To complete the results of this interview, researchers observed about the learning process and the characteristics of students in class IV SDN Tugurejo 01. Based upon the interviews and observations that have been made, the results show that the fourth-grade teacher of SDN Tugurejo 01 only uses conventional teaching materials in the form of LKS and package books. Teachers have not optimally used technology to develop teaching materials. The learning model used by the teacher is also less varied. Furthermore, in the subject of Pancasila Education, numerous students tend to have low learning outcomes. Thus, it is essential to enhance digital teaching materials or e-books in the kind of flipbooks in the PjBL model to address those issues.

The second stage is design. At this stage, researchers designed e-book teaching materials in the kind of flipbooks in the PjBL model on the material of Indonesian cultural diversity in line with the results of the teacher and learner needs questionnaire and the applicable curriculum. Before designing this teaching material, researcher gave a questionnaire of teaching material needs to teachers and students. Based upon the results of the questionnaire, researcher began designing teaching materials starting from covers, backgrounds, backsounds, images, texts, quizzes, and collected various references that were in accordance with cultural diversity material in Class IV Pancasila Education subjects. The teaching materials to be developed by researchers consist of a cover, teaching material developer profile, preface, table of contents, guidelines for use, learning achievements and objectives, Indonesian cultural diversity material, learner worksheet, and quiz.

The third stage is development. Researchers developed e-book teaching materials in the kind of flipbooks in the PjBL model in accordance with the design that had been created at the design stage. The teaching material design was arranged using Canva, then converted into a flipbook using the Heyzine Flipbook website. E-book teaching materials that have been converted into flipbooks can be shared online in the form of a link. The link can be opened via smartphones, computers, and laptops connected to the internet network. The results of the development of e-book teaching materials in the kind of flipbooks in the PjBL model can be sighted in Figure 1.

Figure 1. Development of Flipbook-Based E-Book Teaching Materials in the PjBL Model

After completing making e-book teaching materials in the kind of flipbooks in the PjBL model, researcher conducted a feasibility test of the teaching materials. This feasibility test assessment was done by material and media experts by completing a questionnaire sheet that have been distributed by the researcher. The recapitulation results of the material expert assessment in Table 4.

Table 4. Recapitulation of Material Expert Assessment

No.	Assessment Aspect	Maximum Score	Score Obtained	Percentage	Category
1	Aspects of material suitability	28	27	96.4%	Very Feasible
2	Material completeness aspects	16	13	81.2%	Very Feasible
3	Aspects of material feasibility	16	14	87.5%	Very Feasible
4	Language aspects	20	17	85%	Very Feasible
	Total Score	**80**	**71**	**88.8%**	**Very Feasible**

Based upon the recapitulation table of the material expert assessment, it shows that the e-book teaching material in the kind of a flipbook in the PjBL model is very feasible to use in the learning process. This is befitting of the results of the material expert's assessment in the aspect of material suitability, which gets a percentage of 96.4% (Very Feasible), in the aspect of material completeness obtaining a percentage of 81.2% (Very Feasible), in the aspect of material feasibility getting a percentage of 87.5% (Very Feasible), and in the aspect of language achieving a percentage of 85% (Very Feasible). The total percentage obtained from the material expert's assessment of the feasibility of e-book teaching materials in the kind of flipbooks in the PjBL model is 88.8% including the "Very Feasible" category. Researcher also received suggestions from material expert validators to add examples of cultural diversity in the city of Semarang to the teaching materials that had been made. The development of teaching materials that have been revised by researchers can be seen in Figure 2. Furthermore, researchers also validated the feasibility of teaching materials assessed by media expert lecturers. The recapitulation of the media expert assessment can be sighted in Table 5.

Figure 2. Revision of Flipbook-Based E-Book Teaching Materials in the PjBL Model

Table 5. Recapitulation of Media Expert Assessment

No.	Assessment Aspect	Maximum Score	Score Obtained	Percentage	Category
1	Material suitability aspects	12	11	91.7%	Very Feasible
2	Display aspects	28	26	92.9%	Very Feasible
3	Ease of use aspects	20	19	95%	Very Feasible
	Total Score	**60**	**56**	**93.3%**	**Very Feasible**

Based upon the recapitulation table of media expert assessments, flipbook-shaped e-book teaching materials in the PjBL model obtained a percentage score of 91.7% (Very Feasible) in the aspect of material suitability and obtained a percentage score of 92.9% (Very Feasible) in the display aspect also obtained a percentage score of 95% (Very Feasible) in the aspect of ease of use. Overall, the e-book teaching materials in the kind of flipbooks in the PjBL model achieved a percentage score of 93.3% within the "Very Feasible" category. So, e-book teaching materials in the kind of of flipbooks in the PjBL model are highly testable.

The fourth stage is implementation. Researcher conducted product trials twice on a small and large scale for 6 students and 28 fourth-grade students of SDN Tugurejo 01 and the fourth-grade teacher of SDN Tugurejo 01 and the fourth-grade teacher of SDN Tugurejo 01. The objective of this product trial is to discover the feasibility of implementing e-books in the kind of flipbooks in the PjBL model for learning process and how teachers and students respond to these teaching materials. The results of the feasibility of e-book teaching materials in the kind of flipbooks in the PJBL model, as reported by teachers and students can be sighted in Table 6.

Table 6. Results of Teacher and Learner Responses to the Feasibility of E-Book Teaching Materials in the Form of Flipbooks in the PJbL Model

User	Maximum Score	Score Obtained	Percentage	Category
Teacher	15	14	93%	Very Feasible
Students	90	88	97.8%	Very Feasible

According to the table above, the results of teacher responses received a percentage score of 93% within the "Very Feasible" category, while the results of responses from fourth grade students of SDN Tugurejo 01 obtained a percentage score of 97.8% within the "Very Feasible" category. Based upon those results, it is possible to conclude that e-book teaching materials in the kind of flipbooks in the PjBL model are highly feasible to be applied in the learning process of fourth-grade Pancasila Education on the material of Indonesian cultural diversity.

The last stage is evaluation. The betterment of student learning outcomes can be sighted in the evaluation stage. At this stage, researchers gave pretest and posttest questions to students. Pretest questions are given to students before using e-book teaching materials in the kind of flipbooks in the PjBL model. While the posttest questions are given to students after using e-book teaching materials in the form of flipbooks in the PjBL model. While the posttest questions are given to students after using e-book teaching materials in the kind of flipbooks in the PjBL model. After obtaining the data of student learning outcomes from pretest and posttest scores, researchers tested the normality of the data to appoint whether the data was distributed normally or not. If the Sig value > 0.05 indicates that the research data is distributed normally, whilst the Sig value < 0.05 indicates that it is not distributed normally. The normality test can be sighted in Table 7.

Table 7. Normality Test Result

Product Testing	Test	Sig.
Small Scale	Pretest	0.389
	Posttets	0.078
Large Scale	Pretest	0.063
	Posttes	0.143

As shown in the table earlier, the results of the normality test on a small scale get a sig value. 0.389 on the pretest and sig. 0.078 on the posttest. Meanwhile, the normality test results on a large scale on the pretest were Sig. 0.063 and on the posttest Sig. 0.143. These results indicate that the normality test on the pretest and posttest get a Sig. > 0.05, which means that the research data is distributed normally. After finding out that the research data was normally distributed, the researcher tested the Paired Sample t-test and the N-Gain test. The effectiveness of e-book teaching materials in the kind of flipbooks in the PjBL model can be known in regard to the results of the Paired Sample t-test and N-Gain test values.

To figure out the disparity amidst the average pretest and posttest scores, the researcher applied the Paired Sample t-test. The Paired Sample t-test was performed using the SPSS 25 application. A Sig (2-tailed) value of < 0.05 indicates a significant disparity amongst pretest and posttest scores. On the other hand, a Sig (2-tailed) value > 0.05 indicates that there is no significant disparity in pretest and posttest results. The results of the Paired Sample t-Test can be sighted in Table 8.

Table 8. Paired Sample T-Test Result

Product Testing	Test	Df	Mean	Sig. (2-tailed)
Small Scale	Pretest	6	57.5	0.000
	Posttets	6	85.0	
Large Scale	Pretest	28	60.0	0.000
	Posttest	28	86.6	

The table aboard indicates that the average pretest score was 57.5 and obtained an average posttest score of 85 on the small-scale trial. Meanwhile, the average pretest score is 60 and the average posttest score is 86.6. The table aboard shows that the Sig. (2-tailed) 0.000 < 0.05, means that H_0 is disused and H_a is approved. Based upon those results, it is obvious that there is disparity in the average learning outcomes of students before and after using e-book teaching materials in the kind of flipbooks in the PjBL model.

The N-Gain test can be applied to appoint the growth in student learning outcomes. The N-Gain test is used to see the difference between pretest and posttest scores before using flipbook-shaped e-book teaching materials in the PjBL model and after using flipbook-shaped e-book teaching materials in the PjBL model. The difference between the pretest and posttest values can be used for determining if the usage of e-book teaching materials in the kind of flipbooks in the PjBL model is effective or not when applied to the learning process that intends to prosper student learning outcomes. The results of the N-Gain test can be sighted in Table 9.

Table 9. N-Gain Test Result

Product Testing	Test	Number of Learners	Average	Average Difference	N-Gain Score	Category
Small Scale	Pretest	6	58	27	0.7	High
	Posttest	6	85			
Large Scale	Pretest	28	60	27	0.7	High
	Posttest	28	87			

As stated by the table aboard, the N-Gain test value in both small-scale and large-scale trials acquired a score of 0.7, which is classified as high. Thus, the e-book teaching material in the kind of a flipbook in the PjBL model is being used effectively in the Pancasila Education learning process, and students' learning results are improving.

Discussions

The research results show that e-book teaching materials in the form of PjBL flipbooks have high feasibility and effectiveness, so they are appropriate for use in the learning process at school and home. Several factors cause this. First, e-book teaching materials in PjBL flipbooks are suitable for learning because they can enrich student learning outcomes. The e-book in the form of a PjBL flipbook model can be accessed anywhere and anytime, making it easier for students to learn. Students who learn quickly improve learning outcomes (Juwanti et al., 2020; Suherman et al., 2020; Surya et al., 2018). Flipbook is a digital book that provides information through images, text, and diagrams (Herlina & Hadiyanti, 2021; Suyasa et al., 2021). The e-book teaching material in the form of a PjBL flipbook model developed presents images, text, and diagrams that appear and move every time the page is opened. Developing an attractive flipbook can trigger students' interest in learning both inside and outside the learning process. Flipbook allows teachers to deliver learning material more quickly and efficiently while creating an exciting and enchanting learning environment for students (Arifin & Lestari, 2020; Yuliawati et al., 2022). The learning process using flipbooks provides an alternative way to create a more enjoyable, interactive, communicative learning environment to increase students' understanding of the subjects being studied (Perdana et al., 2021; Susanti et al., 2020). This is what improves student learning outcomes.

Second, e-book teaching materials in the form of PjBL model flipbooks are suitable for learning because they make learning more accessible for students. Project-based learning (PjBL) is a learning model that trains students to solve problems in groups by creating a project to make the learning process more meaningful (Agung et al., 2022; Ningsih et al., 2021). Learning activities are concentrated on students, so the teacher only facilitates this learning (Laili et al., 2019; Mutakinati et al., 2018; Yustina et al., 2020). Applying PjBL in the learning process will produce deeper learning because students understand the learning material and the benefits of doing projects for themselves and the surrounding environment (Laili et al., 2019; Mutakinati et al., 2018). This learning model is suitable for improving students' learning outcomes, creativity, and interest in learning and can create a more enjoyable and meaningful learning environment. The e-book teaching resource in the form of a PjBL flipbook model is effectively used in the learning process in class IV in the Pancasila Education subject of Indonesian Cultural Diversity.

Third, the e-book teaching materials in PjBL model flipbooks are appropriate for learning since they enhance the student learning environmen.. Students become more active and enthusiastic about learning when using e-book teaching materials in the form of the PjBL model flipbooks that have been developed. This is supported by previous findings that

students who are active in learning have an impact on increasing student learning outcomes (Farhan et al., 2021; Handayani et al., 2021). The stages in the PjBL learning model are formulating basic questions, creating a project plan and schedule, monitoring student and project progress, testing results, and evaluating experience. Using this learning model can train students to be more active, brave, and creative and able to work together in groups to create a project as a solution to problems related to the learning material studied (Juwanti et al., 2020; Suherman et al., 2020; Surya et al., 2018). Teachers at schools can create e-book materials like flipbooks as supporting tools in the learning process. Flipbooks can improve the display of learning material to be more interactive and exciting, presented in the form of text or colored images and equipped with video or sound so that students can obtain the competencies and learning objectives that have been set and improve their abilities. This makes e-book teaching materials in the form of PjBL flipbooks suitable for use in learning because they can improve the student learning atmosphere.

The importance of developing e-book teaching materials in the form of flipbooks in the PjBL model is supported by previous research. Previous research findings stated that electronic teaching materials were declared effective in improving student learning outcomes because there were significant differences. Students more easily understood the learning materials using flipbook teaching materials supported by illustrative images and learning videos and exercises (Jazuli et al., 2018; Sriwahyuni et al., 2019; Wendo et al., 2022). Other research also stated that the PjBL learning model can improve student learning outcomes (Hamidah & Citra, 2021; Malikah et al., 2022; Pratiwi et al., 2018). The limitation of this research is that the PjBL model flipbook e-book teaching materials are only intended for class IV elementary school Pancasila Education subjects. The implications of this research show that the PjBL model flipbook e-book teaching materials positively impact the learning process, including making the environment more enjoyable. Another benefit is that students can easily understand material about Indonesian cultural diversity and become more active and enthusiastic about learning. This flipbook electronic teaching material can be accessed anywhere and anytime, allowing teachers to create an ideal learning environment.

4. CONCLUSION

The e-book teaching materials are PjBL model flipbooks and have been assessed as suitable and efficient for use during the learning process. Teaching materials provide material about the diversity of Indonesian culture in the Pancasila Education subject in grade IV elementary school. The assessment results provided by experts show that the teaching materials developed are suitable for learning. The t-test results show a disparity in the average student learning outcomes before and after using the PjBL model flipbook e-book teaching materials during the learning process. The N-Gain test results show that the PjBL model flipbook e-book teaching materials are suitable and effective. Pancasila Education and student learning outcomes have improved after using this teaching material. It was concluded that the PjBL model flipbook e-book teaching materials could significantly improve student learning outcomes.

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