



Development of Pop-Up Book Learning Media Based on Canva for IPAS class IV Elementary School

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Abstract: This research is motivated by the limited learning resources available when learning takes place, especially in the IPAS subject matter in class IV SD Negeri 01 Sampiran. In learning, the class teacher usually only uses print media. Therefore, this study aims to: describe the process of developing pop-up books learning media; determine validity of pop-up books media; determine effectiveness of pop-up books learning media on improving pupils learning outcomes. This type of research is research and development with the Borg and Gall model. This research is structured with eight stages consisting of potential and problems: data collection; product design; design verification; design revision; product trial; product revision; and trial use. The methods used in this research are tests, interviews, questionnaires, and document recording. Multiple-choice exams, questionnaires, and document recording sheets were the tools utilized to collect the data. Pop-up books learning resources powered by Canva has gone through several stages of media expert validation and material expert validation, with the result being "very valid." based on the results of the pre and post-test, this study shows an increase in the average pretest and posttest scores. The n-gain test results obtained got a "high" category. From these results, the followings conclusion the canva-based pop-up books medium is declared feasible and effective to be used to improve IPAS learning outcomes, as well as feasible and practical in learning grade IV SD Negeri 01 Sampiran.

Keywords: IPAS; Learning outcomes; Pop-Up Book

Introduction

Education is an optimal effort to improve the achievement of learning outcomes and learner development. According to Law No. 20 of 2003 concerning the National Education System, the government defines education as a conscious and planned effort to realize learning situations and learning processes so that students can actively develop their potential to have religious and spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and state. Improving the quality of education is done in various ways. One of them is organizing learning for learners

based on their needs (Darling-Hammond et al., 2020; Mohamed & Otman, 2021; Sörensson & Bogren, 2020). Teaching is a combination of two learning and teaching activities (Zhou et al., 2019; Le et al., 2018). Educators try to provide knowledge to students. In other words, studying a process performed of educators for help learners acquire knowledge and information through various experiences.

In this process, the ability of learners to understand the material is strongly influenced by the skills of teachers; for example, presenting materials is very dependent on the skills of teachers to present materials with usage media provided. Studying creativity and to the tools which educators may use in teaching process

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and conveying studying materials, increasing students' creativity, and focusing students' attention on the teaching process (Thornhill-Miller et al., 2023; Ampartzaki, 2023). In this century, learning tools have developed following the times when learning has been integrated with technology. Information and communication technology (ICT) usage to create interesting and innovative learning tools. Apart from using ICT as a learning media, teachers can create creative and innovative learning media that are integrated with ICT (Negrín-Medina et al., 2022; Nuraini et al., 2023; Hapsari & Zulherman, 2021). From the expert remarks shown above, it can be inferred that learning media is a tool to present information or material from teachers to students (Abdulrahman et al., 2020; Marpanaji et al., 2018). The use of learning media is very important, especially in teaching elementary school age, which is still classified as children. According to Piaget (Haleem et al., 2022; Putry et al., 2018), It also requires a medium for students to understand as a replacement for previous learning tools. A pop-up book is a book that contains animation or three-dimensional elements; when the page is opened, the pictures will move to illustrate a material interestingly (Shehade & Stylianou-Lambert, 2020; Ray & Nayak, 2023; Tan et al., 2022).

Pop-up books can present material in the form of interesting pictures because they contain sections that seem to move, change, or live if opened (Fromm et al., 2021). Pop-up books media has several benefits, namely: teaching children to be able to appreciate books; developing children's creativity; stimulating children's imagination; increasing knowledge; and introducing the shape of objects. This learning medium can be a bridge for teachers when delivering material to students in the process of learning because is designed to make it easier for learners understanding of material and can be used in groups or individually (Al Shloul et al., 2024; Zamiri & Esmaeili, 2024; Ong & Quek, 2023). Based on the results of the observations made by the researchers on November 25, 2023, and interviews fourth grade educators at SD Negeri 01 Sampiran, result of survey indicate that when studying takes place, educators usage print media only and has not been integrated with ICT. Based on the teacher's needs questionnaire in teaching IPAS learning material, educators only usage printed media, so this requires more interesting media innovations to help students understand the learning material optimally.

In connection with these problems, it is important to have media in the form of interactive books that are integrated with ICT to make increase the enthusiasm and enthusiasm for learning to make it easier for pupils to learn understand the material in studying and introduce technology-based learning, learning media

that can be used such as canva-based pop-up books. This pop-up books media is integrated with technology, namely canva, so that students can access it anywhere and anytime. Canva-based pop-up books can bring up illustrative images in their learning and are practical to use, easy to carry, have two- and three-dimensional displays, and introduce technology in the world of education, which hopefully can attract and increase the enthusiasm for learning of students. Therefore, Researchers are interested in carrying out this type of research. Based on the above problems, research and development is performed "Development of Pop-Up Book Learning Media Based on Canva for IPAS class IV SD Negeri 01 Sampiran".

Method

The type is research and development (R&D). The process of creating a new product or making an existing one better so that it can work, is known as research and development (Benlaria et al., 2023; Yuniarti et al., 2021). The Borg and Gall development technique was employed by creating Canva-based pop-up books media featuring content related to ethnic diversity. This model was selected because it follows eight steps: potential and problems; data gathering; product design; design validation; design revision; product testing; product revision; and testing. The goal of this model is to provide educational materials in the shape of pop-up books media using Canva. Test of validity is used for determination of the the product's level of validity before development. Four approaches are used in this development research to collect data: questionnaires, tests, document recording, and interviews. An overview of this research is presented in figure 1.

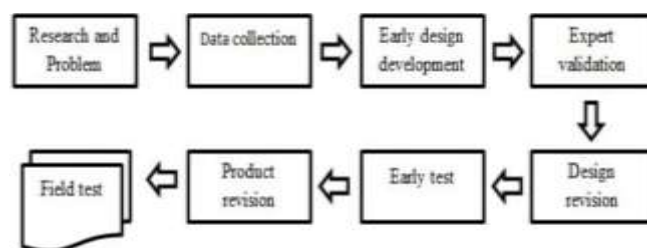


Figure 1. Borg and Gall development model

The potential and problem stages were obtained through interviews, observations, and document recording. Interviews and questionnaires were given to both the class teachers and the pupils of IV SD Negeri 01 Sampiran. The things that were analyzed were the learning process, learning media, student activeness, and learning outcomes. After the interview, the data and the needs questionnaire responses of teachers and students were analyzed. Researchers found a problem

where the educator has not incorporated cutting-edge, ICT-integrated materials for learning into the teaching process, to ensure students are easily bored with the learning media used because they only use printed media in the form of teacher books and student books. After analyzing the data, the researchers then designed the product both in terms of design, materials, and language selection. Product design is adjusted to the learning objectives and criteria for achieving learning objectives, namely in Chapter 6 material on cultural diversity. After the product is designed, design validation is carried out by expert validators with knowledge in their chosen fields, in this case, media and content specifics, complete the validation form prepared by researchers Likert scale.

The next stage is design revision. The product that has been assessed by expert validators is then revised based on the input provided by expert validators so that it is ready to be tested. After the product is revised, it is then tested on students on a small scale, namely in class IV, consisting of 9 students, using the purposive sampling technique. The purposive sampling technique is a sampling technique that involves based on secure considerations based on different levels of cognitive ability (Andrade, 2021). During the product trial step, learning was carried out using a canva-based pop-up book, and after carrying out the learning, teachers and pupils were asked to fill in a questionnaire on how to respond to the application of pop-up books created with Canva. Results of teacher and student questionnaires was then analyzed, and if there was input, it was used as material for revising the products that had been tested.

The last stage is a trial of use, where the product that has been developed is tested on a larger scale. Researchers conducted a trial of its use in class IV, totaling 28 students who had not conducted small-scale trials, for the determination of efficacy of the products developed from the learning outcomes obtained by students. Primary data was the sort of data used. Primary data are those that are gathered straight from interviewing and observing methods with respondents (Atikasari & Desstya, 2022). Qualitative data in this study were obtained from observed results, questionnaires, and teacher interviews performed at SD Negeri 01 Sampiran. Quantitative data in this study were obtained from the learning outcomes of fourth grade students at SD Negeri 01 Sampiran on IPAS subject matter as well as the results of pretest and posttest assessments. The research design employed was a pre experimental design with a one-group pretest-posttest design, namely a pre-treatment pretest and posttest after treatment, which aims to determine the results of the treatment because it can compare the conditions before and after treatment for sure.

Data collection techniques use test and non-test strategies, where test strategies take the shape of multiple-choice questions as many as 23 queries, as well as non-test methods such as observation, questionnaires, interview results, and document recording. To determine the feasibility of the resulting product, analysis of data was carried out as an example of an assessment by material expert validators and media experts using a likert scale. After using the developed product, teachers and students responded to a questionnaire using a likert scale to assess the thing's practicality. Next, data analysis as of the n-gain test based on the results of the pre-test and the post-test of students on a large-scale trial was done to ascertain the efficacy of the product.

Result and Discussion

Result

Potential and Problems

At this steps, the potential and problems are obtained through analyzing interviews and questionnaires about the needs of class IV teachers at SD Negeri 01 Sampiran. The things that were analyzed were the learning process, learning media, student activeness, and learning outcomes. After conducting interviews and analysis, researchers found problems in the content of IPAS learning subjects, especially social clumps, in which, in this case, students are easily bored with the learning media used because they only use teacher- and student-printed books and there is no learning media integrated with ICT.

Initial Data Collection

After getting a problem, the researcher proceeds to the next stage, namely looking for and sharing information and literature that will be used as the basis for developing a product. This stage involved a questionnaire of the requirements of educators and learners to find out these criteria expected by teachers and students in the development of media conducted by researchers. Basis of the results from questionnaire of the needs of teachers and pupils, in learning, the teacher has used literature, but the though the only type of literature employed is printed literature, so it has not attracted students to follow the learning process. Teachers need learning media that are more innovative and integrated with ICT, so learning media needs to be developed that can attract students' interest in learning.

Product Design

The canva-based pop-up book is built in compliance with the learning objectives and criteria for accomplishing the learning objectives to be reached. The

canva-based pop-up book is developed with a concept consisting of illustrations, text, and a QR code that directs to canva for a partial explanation of the material. The illustrations presented are according to students' characteristics to make the content easy to understand. The canva-based pop-up book is made by preparing materials and creating designs through the canva application.



Figure 2. Design



Figure 3. Assembly



Figure 4. Book content

The steps in designing the product include: making designs, formats, and illustration layouts that are in accordance with the material; printing designs; preparing materials to make canva-based pop-up books; and designing canva-based pop-up books.

Canva-based Pop-Up Book Media and Learning Feasibility Validation

At this step, researchers validate the product with competent media expert validators, namely lecturers of elementary school teacher education study programs, and subject matter experts, specifically IPAS instructors in study programs for elementary school teacher education. The process of validation is used to identify and assess the media that should be created to meet the learning objectives and the criteria to achieve it.

Table 1. Media Expert Validator Assessment Results

Aspect Feasibility	Validation Index (%)	Category
Media aspects	96	Very feasible
Cover display	100	Very feasible
Content display	95	Very feasible
Usage	100	Very feasible

Table 1 shows that the validation results given through the verifier have valid results because they get a score above 80%, which is included in the very feasible criteria. A Canva-based pop-up book is declared to have valid overall content – material, appearance, media, and language – and is ready to be tested. This is confirmed by studies Andrade (2021) and Dewi et al. (2024) showing the media expert team's review of the Canva-based pop-up book creation earned a 97% score in the very achievable range. This showcases the appropriateness of the pop-up books media created with Canva.

Table 2. Material Expert Validator Assessment Results

Aspect Feasibility	Validation Index (%)	Category
Content eligibility	96	Very feasible
Presentation	100	Very feasible

Table 2 shows that the material expert validation results achieved a 91% score in the exceptionally feasible level. Evidently, pop-up books products developed are feasible and utilised as additional substitute teaching materials in the IPAS learning process in elementary schools. Another study conducted by Setyaedhi et al. (2024) obtained a score of 92.50% in a very feasible category. This shows that canva-based the media for pop-up books is available to use without material revision.

Media Revision

Researchers revised the design according to suggestions from media experts and material experts. Suggestions given by media expert validators in the form of tidying up the edges of the book so that the cover can cover the contents of the book.

Discussion
Product Trial

In this trial, there were 9 fourth grade students with heterogeneous selection based on student ability levels, namely 3 students with low scores, 3 students with medium scores, and 3 students with high scores. After students do the learning, students and teachers are given an answer sheet containing 10 questions with a Likert scale that must be filled in based on their experience using the product that has been developed by the researcher. The questionnaire has assessment criteria: assessment with very positive criteria if the value is 75%-100%; positive criteria if the value is 50%-74%; negative criteria if the value is 25%-49%; and very negative criteria if the value is 0%-24%. To evaluate the pop-up book created with Canva's practicality, a questionnaire was distributed to teacher and student responses, which had two aspects, namely media content and use, which were then divided into four indicators, namely appearance, usability, and the impact of using the developed product.

Table 3. Results of Teacher and Learner Responses on a Small Scale of Canva-based Pop-up Book Learning Media

Respondent	Validation Index (%)	Category
Teacher	93	Very positive
Student	94	Very positive

Table 3 shows that the effect of teacher and student' reaction to the Canva-based pop-up books as media have very positive results because they get a score above 75%. So that the Canva-based pop-up books as media practical to educational activities that make use of Canva-based pop-up books as media is declared very positive and practical based on 10 Likert scale indicators. Because most of the indicators scored 4, there were no product revisions in the small-scale trial.

Table 4. Results of Teacher and Learner Responses on a Large Scale of Canva-based Pop-up Book Learning Media

Respondent	Validation Index (%)	Category
Teacher	93	Very positive
Student	95	Very positive

Table 4 shows that the effect of teacher and students' reaction to the canva-based pop-up book as

media received very positive results because they scored above 75%. The Canva-based pop-up book media received a positive criterion based on 10 Likert scale indicators. Because most of the indicators scored 4, they indicate that the canva-based pop-up books as media received so positive response. This is according to the findings of the research that has been published, which explains the questionnaire of teacher and students' reaction the proliferation of pop-up books in media (Dwivedi et al., 2023; Nabila et al., 2021), obtained results above 81.70%, thus showing very positive results. The research developed (Hafifah et al., 2023), obtained 96% results, thus showing very positive results. Research developed (Yulia et al., 2022), obtained results of 95.55%, which showed very positive results. Other research was also developed (Anggrasari & Dayu, 2022) which obtained results of 98.3%, which showed very positive results. The research shows that pop-up books using media in the learning process is effective (Ramadhani et al., 2024).

Usage Test

The method of data analysis used at this study, n-gain. N-gain is a comparison of pretest-posttest scores obtained by students with the highest score that students can get (Samputri & Suryani, 2024; Rosdiana & Ulya, 2021). The n-gain test on the canva-based pop-up book on the cultural diversity of IPAS lesson content is employed to ascertain the effectiveness in the thing based on Student comprehension goal. The design a pre-experimental design with a one group pre-test - post-test design model, namely a pretest before treatment and a posttest after the study.

Table 5. The Results of the Pretest and Posttest of the Trial Using Canva-based Pop-up Book Media

Type of test	Average	Mean difference
Pretest	45.42	45.42
Posttest	91.75	

Based on Table 5 it is established that most people Students' learning outcomes increase of 45.42 in the large-scale product trial. The information demonstrates the differences. in the learning outcomes of learner regarding for IPAS lesson content in class IV SD Negeri 01 Sampiran, there are differences both preceding to and during usage Canva-based pop-up books as media. To determine known as criteria for increasing the average pretest and posttest, a n-gain analysis was carried out by comparing the differences between the SMI and pretest.

Table 6. Average Test Results (N-gain)

Mean difference	N-gain	Category
45.42	0.86	High

Based on Table 6 as is well known, the average difference was 45.42 in the large-scale product trial. This demonstrates the importance of fourth graders in SD Negeri 01 Sampiran has mean increase of 0.86 and is high criteria. This average increase shows which media books with pop-ups created with Canva in the IPAS subject matter in class IV SD Negeri 01 Sampiran is successful in improving student learning outcomes. The study of research carried out by Anggraini et al. (2019) and Fazira et al. (2021), which shows the pop-up books media developed improve the learner's outcomes for learning in the "medium" criteria. Research developed Lim et al. (2023), shows the pop-up books media developed can improve the learner's outcomes for learning of fifth students' grades based on the content of building space with a "very high" category. Another study developed obtained a "high" category (Amalia & Nurharini, 2025). The idea that canvas-based pop-up books media can enhance learning outcomes for students demonstrates its viability and efficacy as a teaching tool (Faradilla & Rahmawati, 2024).

Conclusion

Based on the study that has been done, in conclusion, pop-up books media based on Canva can enhance IPAS learning. The learning outcomes of fourth grade learner of SD Negeri 01 Sampiran in IPAS subject matter this is evidenced by the product validation assessment's outcomes, which achieved a median of 97.5% in a very feasible category. Data analysis of students' pretest and posttest scores increased with an average difference of 45.42 and an n-gain of 0.86, this is among the high levels. This demonstrates that the pop-up books learning medium based on Canva has been deemed practical and successful in enhancing the learning outcomes of fourth-grade learner about the cultural diversity of the subject covered in IPAS lessons.

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Author Contributions

Yossi contributed in conducting research, developing products, analyzing data, and writing articles. Tri Astuti contributed as a supervisor in this research until writing the article.

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Conflicts of Interest

The authors declare no conflict of interest.

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