



Development of Flipbook Learning Media to Improve Learning Outcomes IPAS

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Abstract: Utilizing digital learning media is something that teachers need to do. This is because learning media is an important learning role. The lack of use of innovative and creative learning media can result in student learning outcomes not being achieved optimally, especially in class IV science subjects on plant body parts and their functions. This research was conducted with the aim of creating and developing Flipbook learning media which can be used as a means of delivering material to students. This research uses Research and Development research with the ADDIE research model. Furthermore, the researcher's data analysis technique used the normality test, n-gain test and t-test which were processed with the SPSS 23 application. The expert validator lecturer's assessment obtained a percentage result of 93.75% in the very feasible category. The results of the normality test in this study obtained a pretest result of 0.52 and a posttest value of sig. = 0.36 which indicates that the data is normally distributed. The next analysis is the n-gain test which produces the result that the n-gain score is 0.46 which shows an increase in the value in the medium category and the last one is the t-test which produces t-test calculations for pretest and posttest questions showing results that are sig. (2-tailed), namely 0.000, indicates a significant difference between the pretest and posttest. Through research and assessment of the test results, there is an increase in student scores as seen from the pretest and posttest learning results. Thus, it can be concluded that the Flipbook learning media is very suitable and effective for use in teaching and learning activities, especially in class IV science subjects regarding plant body parts and their functions.

Keywords: Class IV Elementary School; lipbook media; IPAS Learning outcomes

Introduction

Learning is a process of gaining knowledge and experience in the form of changes in the ability to react to things and changes in behavior that are relatively permanent, this is due to the interaction between the individual and the surrounding environment (Dwivedi et al., 2023). Each person's experience can be gained from several activities carried out, while knowledge can be obtained from teaching and learning activities with teachers at school. Teaching and learning activities in schools are based on the curriculum set by the

government. Indonesia has experienced several curriculum changes, the curriculum changes carried out have a goal, namely that the education system still needs improvement in order to achieve national education goals with the most effective education programs (Sholekah, 2020). Apart from that, changes to the curriculum are also adjusted to the characteristics of students which are increasingly developing along with current developments. Currently, several elementary schools are using the latest curriculum, namely the Independent Curriculum.

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The independent curriculum has essential things, especially at the elementary school level, namely that the subjects of Natural Sciences (IPA) and Social Sciences (IPS) have been merged into the subjects of Natural and Social Sciences or what are often called IPAS. In this independent curriculum, the implementation of the science subject is carried out for one semester, where there is a division that the science content is in the first semester while the second semester studies the social science content. The science subject is a non-compulsory subject in basic literacy and numeracy for phase A (grades 1 and 2). Science subjects begin to be taught in phase B (grades 3 and 4) (Rahayu et al., 2022).

Science and Technology is a subject that discusses living things and their interactions with the surrounding environment (Whyte, 2013; Briffa et al., 2020). The hope given to students by combining these subjects is that students will be able to manage nature and society in one unit (Singh et al., 2021; Dunlosky et al., 2013). Thus, in implementing science subjects, it is necessary to involve relevant context between students and the natural conditions and surrounding environment. Apart from that, changes to the curriculum are also adjusted to the characteristics of students which are increasingly developing along with current developments.

It is known that the current generation is entering the industrial revolution 4.0 where everything takes advantage of technological developments (Javaid et al., 2022; Asadollahi-Yazdi et al., 2020; Hardyanthi et al., 2019). In reality, teaching and learning activities in schools also require technology to deliver material. However, through direct observations and observations carried out by researchers, teachers in delivering learning material only use printed books as learning media, resulting in the classroom atmosphere looking less active. These elementary school students prefer learning that always moves dynamically, such as with a fun game (Eka Winarsih, 2021; Dichev & Dicheva, 2017; Cheung & Ng, 2021; Byusa et al., 2022). Based on this, researchers found a solution to this problem, namely by developing learning media.

Learning Media is a tool that can make it easier for teachers to convey a message to teaching and learning activities, the purpose of the message is learning material (Wahrini & Peng, 2023; Marpanaji et al., 2018; Hasanah Lubis et al., 2023). It was also stated that learning media is an alternative that can be used by teachers to convey learning material to students easily and well and creates a sense of fun so that it can motivate students to learn (Haleem et al., 2022). This means that learning media is a tool that can make it easier for teachers to convey material to students, this media is both in the form of objects and environments which in the learning process create pleasure and increase

students' motivation to take part in teaching and learning activities.

Flipbook learning media is a media developed by researchers. Flipbook is a book learning media that is displayed in electronic form to which text, images or videos can be added that are related to the material being studied (Setiadi et al., 2021). Thus, it can be said that flip books are a practical medium that can be created in soft file form and displayed during learning so that it can help students understand learning and not feel bored when carrying out learning activities. Flipbook learning media has the characteristic that it feels like opening a book, this is because in Flipbook a navigation feature is provided which has several model options that can be used to change to the next page and can be combined with interesting images and writing (Nurwidiyanti & Sari, 2022).

Researchers developed Flipbook learning media for class IV science subjects on learning material about plant body parts and their functions. The Flipbook learning media that will be developed by researchers is digital-based which will later be applied in teaching and learning activities where an assessment will then be taken on students' learning outcomes regarding plant body parts and their functions.

Method

This research uses a quantitative research approach which is useful for confirming and proving something using numbers (Van Deursen, 2020). The type of research used is development research or RnD (Research and Development). According to Sarpong et al. (2023), RnD research has the aim of developing knowledge through new products produced, where these products are more innovative. Developing a product must go through several stages so that the media developed can be used effectively. Thus, this research uses the ADDIE development model. The ADDIE development model has five steps that must be fulfilled, namely analyze, design, develop, implement, evaluate (Azzahra et al., 2023).

In this research, a product was developed in the form of a Flipbook with a division of material focus on each part of the plant body and equipped with quizz-based practice quizzes in it. The subject implemented in the development of this learning media is science for class IV on plant body parts and their functions. The feasibility test of the learning media was carried out by expert validator lecturers. The effectiveness of the media developed can be seen from the learning outcomes of students after testing the resulting media products. This research was conducted at SD Negeri Kupang 03, Semarang Regency. The data source for this research is

that the researcher obtained information to solve a problem from expert validator lecturers to test the suitability of the media, homeroom teachers through interviews, observations of teaching and learning activities, and questionnaire results. Apart from expert validator lecturers and homeroom teachers, information is also obtained from students through learning outcomes, observations of teaching and learning activities, and questionnaire results.

Saturated sampling used in this research means that all members of the population have the same right to be sampled (Saunders et al., 2018). In this research, there is a variable that will be studied, namely the independent variable Flipbook learning media which is symbolized by X and the dependent variable is the learning outcomes of science and science subjects for class IV students which is symbolized by Y. Data collection in this research used test techniques and non-test techniques. The test technique is in the form of a test sheet containing question items where each question must be done and the results are used to measure the knowledge, abilities and skills of the research subject. In this study, researchers used two test techniques, namely pretest and posttest. Meanwhile, collecting data using non-test techniques, researchers carried out learning observations, interviews with teachers and students, documentation and questionnaires.

Result and Discussion

The type of development model used in this research is the ADDIE development model. This ADDIE development model has 5 steps that must be carried out, namely analyze, design, development, implementation, and evaluation. By using this type of development, you get the following results. Analyze, the researcher identifies the cause of the problem by making observations and identifying the results of pre-research observations that have been carried out and to analyze a need the researcher distributes a needs questionnaire to class teachers and students.

Design, researchers first design learning tools such as teaching modules, student worksheets and practice questions. After completing the design of the learning device, the researcher designs the media that will be created. The researchers designed the media design using the Canva application. Development, the design that was created through the Canva application was developed into a Flipbook via the Heyzine Flipbooks website. According to Nuryani & Surya Abadi (2021), Marwan & Yuliantri (2023), Sa'adah et al. (2022), Flipbook is a book like an album in virtual form which contains learning material that uses simple sentences and is full of colors and pictures. In this development,

researchers used features with the aim of increasing the attractive impression of students. Furthermore, at this development stage the researcher also validates the learning media carried out by expert validators where the researcher gets the grades and suggestions given (Khotimah & Wahyuningtyas, 2023). Then, through the suggestions given, the researcher made revisions and then implemented the learning media in the classroom and got very decent results. The following are the results of the development of Flipbook media:



Figure 1. Results of the development of Flipbook media

Implementation, applying learning media that has been created and developed to students directly in the classroom (Abidah, 2023; Wahyuni & Ananda, 2021). The implementation of the Flipbook learning media was carried out at SD Negeri Kupang 3, Semarang Regency. Testing of the media developed was carried out directly and involved all class IV students. Evaluation, has the aim of evaluating quality starting from the manufacturing process until it becomes a product, both before and after implementation. Assessment of the feasibility of learning media is carried out by expert

validators. After the assessment results state that the media is suitable for use, the evaluation activities continue by assessing and observing the learning outcomes of students before and after using the learning media to see whether the product is an effective evaluation. This is done by testing trial questions, statistical tests and learning outcomes obtained from pretest and posttest results.

Based on the results of research conducted Qomah & Khosiyono (2022), Getie (2020), it is stated that students have a tendency to like media that uses attractive images and not too much material text because it makes it difficult for students to receive the material. Thus, this is in line with observations made by researchers that students need something interesting in learning, this can be done by carrying out learning activities with explanations of the material through the Flipbook learning media that has been developed by researchers. The results of a product can be said to be good if it gets a media product assessment by a good media expert validator.

The assessment carried out by media expert validators aims to determine the suitability of the media that has been developed. This feasibility test aims to obtain the feasibility value of a product that has been produced, according to Pratama et al. (2023) feasibility analysis can be calculated using a certain formula which will later provide results. Based on the assessment of media expert validators, there are 12 media indicators that get a percentage result of 93.75% which is included in the criteria for being very suitable for use. This is in

line with research conducted by (Opidianto et al., 2023) that the percentage value is included in the very valid or very feasible criteria, because the assessment of the very valid or very feasible criteria is in the range of 76%-100%. Next, the researchers tested the effectiveness of the products that had been produced. Through this effectiveness test, researchers obtained students' cognitive results which can be seen from the results of the pretest and posttest scores.

The cognitive results of students show that there is an increase that can be seen in the percentage of KKM completion in the pretest of 6% and in the posttest of 53%. Thus, an increase of 47% resulted after implementing the Flipbook learning media. This is in accordance with the advantages of the Flipbook learning media explained by Adnyana (2023) Fitri et al. (2023), that Flipbooks can create learning variations so that students do not feel bored and can increase students' interest in learning. Next, the results of the students' pretest and posttest scores are processed through the following test. Normality test, the calculation of the normality test in the development of Flipbook media is calculated through the results of the pretest and posttest to determine whether the data is normal or not (Azizah & Sucahyo, 2022; Simanjuntak et al., 2022; Hany & Syafriani, 2024). This development research uses the Shapiro-Wilk test formula because the samples used are less than 50. The normality test uses the Shapiro-Wilk test formula with the help of SPSS 23, below are the results of the normality test:

Table 1. Tests of Normality

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	
Pretest	.134	17	.200*	.954	17	
Posttest	.136	17	.200*	.944	17	

Normality test using the Shapiro-Wilk test formula obtained a pretest value of sig. = 0.523 and the posttest value is sig. = 0.367. The results of these calculations show that both are > 0.05, meaning Ho is accepted, in other words the data has a normal distribution. The n-

gain test was carried out to determine the achievement of students' abilities in learning both before and after being given behavior using the Flipbook learning media. Following are the results of the n-gain test.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Descriptive Statistics	
				Mean	Std. Deviation
Ngain score	17	-.07	.92	.4659	.24226
Ngain persen	17	-6.67	91.67	46.58	24.22
Valid N (listwise)	17				

The table 2 shows that the n-gain score is 0.46. The N-gain score is in the interval 0.3 to 0.7, which means that the increase in the pretest score to the posttest score

is in the medium criteria. The t-test was carried out to analyze and calculate whether there was an average difference between two paired samples with different

treatments. The researcher carried out a t-test with the help of SPSS 23, following are the results of the t-test.

Table 3. Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig.(2-tailed)
				Lower	Upper			
Pair 1								
Pretest Posttest	-22.35	12.65	3.06	-28.85	-15.84	-7.28	16	.000

The results of the t-test calculation of the pretest and posttest questions show that sig. (2-tailed), namely 0.000, so it can be said that there is a significant difference in value due to sig. (2-tailed) $0.000 < 0.005$ which means H_0 is rejected. Thus, it can be concluded that there is a significant difference between the pretest and posttest scores. After using the Flipbook learning media, the results of students' KKM completion increased, there was a significant average difference between before and after using the Flipbook learning media, this was shown by the results of the t-test. There was an increase in student learning outcomes before and after implementing learning media in the classroom, this was obtained from the results of the n-gain test. Thus, it can be concluded that the Flipbook learning media is effectively used to improve student learning outcomes (Fortune & Suranto, 2023).

Conclusion

The development research carried out resulted in Flipbook learning media as a tool that can help teachers in explaining material in class IV science subjects, especially material on plant body parts and their functions. By using the Flipbook learning media, students in participating in teaching and learning activities look more active and enthusiastic, this is because in this learning media there are features, images, videos and quizzes that are packaged more attractively. Thus, it can be concluded that the Flipbook learning media is very effective and suitable for use to improve the learning outcomes of class IV students. This can be seen clearly through the results of the normality test, n-gain, t-test and the differences in learning outcomes between posttest and pretest.

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Author Contributions

Preparation of F.Y.P.P.; proposals; F.Y.P.P.; data collection; Data analysis and preparation of F.Y.P.P. articles; Correction of data results and S.Y. article, Validation S.Y.

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Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

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