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# Improve Science Learning Outcomes For Elementary School Students Through The Development Of Flipbook Media

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# Improve Science Learning Outcomes For Elementary School Students Through The Development Of Flipbook Media

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**Abstract:** This development research aims to: (1) develop Flipbook learning media in science learning material for animal life cycles (metamorphosis), (2) the level of validity of Flipbook learning media, and (3) the effectiveness of Flipbook learning media. The trial subjects were 25 Class IV students and a teacher at SDN Poja II Sumenep. This research method uses the Research and Development (R&D) type ADDIE development model, which has five stages: analysis, design, development, implementation, and evaluation. The data collection instrument was in the form of a questionnaire given to media experts and material experts to see the validity of the developed media. The research design is a one-group pre-test post-test design with before-after experiments. The experts obtained an average score of 94.92% based on the assessment results, with an excellent assessment category. The average score of the teacher response assessment is 4.41, and the average student response assessment is 3.6 with the category of effectiveness, namely effective. From all validator responses, teacher responses, and student responses, in the development of Flipbook learning media in the Science class IV subject at SDN Poja II Sumenep, it was declared feasible to be used in the teaching and learning process.

**Keywords:** flipbook learning media, animal life cycle (metamorphosis), science

## Introduction

The development of education and information and communication technology has brought enormous changes to the advancement of the world of education (Wahyuni, Noer, & Linda, 2018). Along with the development of the world of education, learning methods have also experienced many developments, both personal learning methods, learning media and the learning process (Safitri, Permata, & Wilujeng, 2021). Education is essentially an effort to form and develop human beings in a certain process to create a quality generation in terms of religion, science and personality. Education as an activity, process, result and science is a conscious effort made by humans throughout life to meet the needs of life (Roza Linda, Sulisty, & Putra, 2018). Students can develop spiritual and emotional intelligence, knowledge, and skills through education. The world of education is growing

rapidly, and various kinds of reforms are carried out to improve the quality of education (Saraswati & Linda, 2019). Improving education quality requires various breakthroughs in the quality of teachers/teachers, curriculum development, learning innovation, and the quality and completeness of facilities and infrastructure (Hardiansyah & Zainuddin, 2025).

In improving learning, teachers are required to make learning more innovative and creative, encouraging students to learn optimally both in independent learning and in classroom learning (Rusli & Antonius, 2019). Teachers are expected to be able to use efficient tools even though they are simple and unpretentious, which is a must to achieve the expected teaching goals (Simatupang & Sormin, 2020). Learning materials can be designed to represent teacher, lecturer or instructor explanations in front of the class and as a guide for learning activities, including targets and targets to be achieved (Suyasa, Divayana, & Kristiantari, 2021). In addition, learning materials are

located as tools or means to achieve competency standards and basic competencies (Wahyuni et al., 2018). Learning media is one part of the learning system that is used to deliver educational information messages between educators and students to create an effective and efficient learning atmosphere. Teachers can also develop skills in making learning media that will be used in the media is not yet available (Divayana, Suyasa, Ariawan, Mahendra, & Sugiharni, 2019). The media delivery method used by the teacher is a procedure that can assist students in receiving and processing certain information into a basic understanding of raw information sets into scientific discourse (R Linda, Nufus, & Susilawati, 2020).

Based on observations made by researchers in one of the elementary schools in Sumenep Regency, in the learning process in the classroom, there are several problems faced by students; first, on average, students tend to be passive in participating in learning activities. The techniques and strategies used only involve one direction, which is only teacher-centred. The second problem is students' lack of interest in understanding the material because the teaching materials are only centred on student books; pictures and examples of questions do not accompany other learning books that contain questions. There is no summary of the material. The third problem, the low learning outcomes of students, is due to the lack of student activity during the learning process. As for other factors, namely, the use of learning methods used by teachers is not used properly; it makes students less interested and creative in participating in learning at school. In learning, teachers only rely on learning media already available in schools in the form of textbooks and pictures and objects around students, which results in a low level of student understanding of the material. So researchers can conclude that if teachers do not apply learning media during teaching and learning, it has a favourable impacts students' attention in following the teaching and learning process. Seeing the learning situation that is less effective and efficient, the researcher states that to achieve instructional goals in learning, it is necessary to design good media so that there is an increase in student achievement.

Learning media are tools and materials used to distribute messages or information on the subject matter in the learning process (Hardiansyah & AR, 2022b). Learning media is usually packaged with something creative and interesting so that students are enthusiastic, interested, and motivated to participate in the learning process (Hardiansyah, 2022). Learning media can be designed in such a way and can be made by teachers or teachers with students (Rahmawati & Rukiyati, 2018). Teachers can use attractive and effective learning media to minimize student saturation

in participating in the learning process (Elmunyah, Hidayat, & Asfani, 2019). Teachers' ability to design or compile learning media is very important in determining the success of the learning and learning process. Various kinds of existing multimedia-based media can be applied in the learning process, one of which is a flip book. The flip book is an application that can change the appearance of PDF files and images into an attractive display. In addition, flip books can combine a combination of text, images, video, audio, hyperlinks, flash animations, and hotspots.

Flipbook is designed innovatively to foster interest and increase student interest in learning, which will impact student learning outcomes in class (Erna, Elfizar, & Dewi, 2021). Flipbooks can be used as teaching materials for students individually or in groups, and flipbooks are practical and can increase students' enthusiasm and interest in learning because they can visualize concepts in lessons into 3-dimensional images (Roza Linda et al., 2018). Flipbook learning media can help students be more active and learn more interesting and impressive, especially elementary school students because they are still thinking concretely, so everything the teacher says or conveys must be displayed clearly (Fonda & Sumargiyani, 2018). Flipbooks can be designed according to the needs of the material that must be taught by the teacher and, of course, by paying attention to the learning steps in class (Handayani, Winarni, Sundaryono, Firdaus, & Alperi, 2021). Various types of flip book software can be downloaded for free and used offline, making it easier for anyone who wants to use or apply it, especially in the learning process (Safitri et al., 2021).

Previous research (Yulinar, 2019) entitled Development of Android-Based Kvisoft Flipbook Learning Media for Class X SMAN Jenepono. The study results show that the validation value of the three experts obtained from the Aiken index is  $V = 1.0$ , which indicates that the android-based kvisoft flipbook learning media is valid and feasible to use. Based on these data, it can be concluded that the Android-based kvisoft flipbook learning media developed is valid, practical and effective. One of the implications of this research is, by the results of the study, that the android-based kvisoft flipbook learning media is feasible to use, so it is suggested to the school to use this android-based kvisoft flipbook learning media to be used as a device to support students in understanding subjects IPA is Static Fluids. Furthermore, the relevant research was carried out by (Wahyuni et al., 2018) with the title Development of Flipbook Picture Storybook Media for Improving Learning Outcomes in Social Science Learning for Fourth Grade Students of Islamic Elementary School As-Salam Malang. The development

of this learning media has produced a product in the form of a storybook with a social science flipbook with the theme of my hero for class IV MI/SD. From the validation results: 1) This learning media shows validity as evidenced by the average percentage of (a) content expert validation (material) 92.00% stating it is very valid, (b) learning design media expert validation results 96.00% stated that it was very valid, (c) the results of the validation of learning experts (teachers) 92.8% stated that it was very valid. 2) The percentage level of validity in the class IV trial of ASDI As-Salam Malang showed 95% stated that it was very valid. 3) From the results of data analysis through the t-test test formula correlated (related), resulting in  $t_{count} = 3.657 > t_{table} = 2.056$ , so there are differences in students who use learning media and those who do not. So the results of the development that has been carried out can improve student learning outcomes.

The scope of Science subjects includes two aspects, namely scientific work and understanding concepts and their application (Femalia & Ahmad, 2021). Scientific work includes investigation/research, scientific communication, creativity development and problem-solving, scientific attitudes and values, while understanding the concept and its application includes living things and life processes, including humans, animals, plants and their interactions with the environment, as well as health, objects/materials, properties and uses include: liquid, solid, and gas; energy and its changes include: force, sound, magnetism, heat, electricity, light and simple machines, earth and the universe including land, earth, solar system, and other celestial bodies (Safitri et al., 2021).

One of the natural science materials on the scope of living things and life processes is about animals (Roza Linda et al., 2018). The animal life cycle (metamorphosis) is one of the materials that students need to understand at the elementary school level to know the process of metamorphosis that occurs in animals (Aswirna & Ritonga, 2020). In addition, students are expected to identify animals that undergo complete metamorphosis and incomplete metamorphoses in the surrounding environment, such as cockroaches, mosquitoes, butterflies, and cats (Saraswati & Linda, 2019). Students must be able to understand and correctly describe the life cycle of animals (Handayani et al., 2021). Students can use animal life cycle materials in everyday life to help or prevent animals from breeding (Saroinsong, Kurnianingtyas, Dirlina, & Maulidiyah, 2022). For example, caterpillars found in plants can be exterminated or moved so as not to disturb the plants; mosquitoes, dangerous animals, can be prevented by frequently cleaning bathtubs or stagnant water places on (Putri, Uchtiawati, Fauziyah, & Huda, 2020). With

this, animal life cycle material is material that becomes an important competency both for students themselves and for other living things around them (Erna et al., 2021).

Student learning outcomes are influenced by two main factors, namely factors from within students (Internal factors) and factors that come from outside students or environmental factors (External factors). This factor has a huge influence on the learning outcomes to be achieved. Another internal factor that affects learning outcomes is learning activities. Learning activities are all carried out in the interaction process (teachers and students) to support learning success. The activity intended to emphasize is students because, with the activities of students in the learning process, an active learning situation is created that emphasizes the activeness of students physically, mentally, intellectually, and emotionally in order to obtain learning outcomes in the form of a combination of cognitive, affective, and psychomotor aspects.

## Method

The method used in this research is the research and development method. The research and development method is a method used to produce specific products and to test the effectiveness of these products. Research and development is a process or steps to develop or improve an existing product, which can be accounted for. This research was conducted to develop a learning media product as a flipbook of animal life cycle material (metamorphosis) in class IV SDN Poja II Sumenep. The procedure for developing this research uses the ADDIE development model, which consists of 5 stages, including the overall design of a systematic learning process, including (a) Analyze; at this stage, the researcher analyzes what problems are behind the emergence of the development of learning media. (b) Design; at this stage, the researcher will realize the things that have been analyzed. Researchers will make the necessary plans. Researchers are Looking for references related to the development of the media, namely the flipbook media. (c) Development; at this stage, the media will begin to be developed by researchers according to a predetermined design, after which material experts and media experts will validate the media created. If the media created has not reached the positive criteria, the researcher will revise the media according to the advice of media experts and material experts. After the media is said to be positive, the researchers will try it out on science teachers and fourth-grade students at SDN Poja II Sumenep. (d) Implementation; at this stage, the media that has been

developed will be implemented in real situations, namely in the classroom. During implementation, the media that has been developed is applied to the actual conditions. The material presented is by the media developed. (e) Evaluation is done by looking at student feedback after using flipbook media.

The trial design used in this development research compares student test results when using the media and when not using flipbook media. The trial design was used to determine the attractiveness of the learning media developed by the researcher. The test subjects in this study were the fourth-grade students of SDN Poja II Sumenep, totaling 25 students. Collecting data in this study in the form of; (1) a questionnaire is a data collection technique that is carried out by giving respondents a series of questions or written statements to answer. Researchers compiled 12 statements to the

teacher and 20 statements to students in writing to be filled in by the respondent and gave (√) according to the respondent's opinion. The model used in the questionnaire uses a Likert scale in which there are five alternative answers, namely; strongly agree (point 5), agree (point 4), quite (point 3), disagree (point 2), and strongly disagree (point 1), (2) observations were made by researchers on learning activities that occurred in fourth-grade students SDN Poja II Sumenep, (3) learning outcomes test is used to determine the level of students' understanding by measuring initial achievement before being given treatment and measuring final achievement after being given treatment. This treatment showed increased students' understanding after using flipbook media for animal life cycles (metamorphosis).

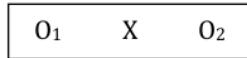
**Table 1. Questionnaire Statement To The Teacher**

Statement
Flipbook media is easy to use in science learning
The use of flipbook media in Animal Life Cycle material helps students to know the learning objectives
The use of flipbook learning media makes it difficult for students to learn
The description of the picture material and learning videos contained in the flipbook media for the Animal Life Cycle material is clear and easy to teach
Flipbook learning media is very effective for online learning
Students feel happy when taught by using flipbook learning media
Flipbook media does not help students to achieve learning objectives
Flipbook learning media on animal life cycle material includes clear and accurate information
Flipbook learning media is complicated to use
Giving assignments/evaluations is more interesting by using flipbook media on animal life cycle materials
Flipbook learning media can also be applied to other materials and other subjects
Flipbook learning media can help students learn independently

**Table 2. Statement Questionnaire To Students**

Statement
Flipbook learning media has a very attractive design
Material according to flipbook media
Flipbook learning media cannot be used properly
Flipbook learning media is easy to use
By using flipbook media I find it easier to learn
I don't like learning science using flipbooks
Flipbook media learning makes it difficult for me to digest what the teacher is saying
I answer the quiz easily
The animation contained in the flipbook media attracts my attention to study
I don't understand learning by using flipbook media
The video in the flipbook learning media is in accordance with the learning material
The concepts contained in flipbook media are very easy to understand
Flipbook media cannot be used manually
The use of flipbook media is too much material so I am lazy to study
Flipbook media usage guide is not useful
The sound on the flipbook is not clear
Writing on flipbook media is not easy to understand
Flipbook learning media is very fun
Flipbook media can only be accessed in certain places
The vocabulary used in the media is easy to understand

Data analysis in this study used quantitative analysis. Data analysis of test results conducted to measure the level of understanding of students in a limited trial in the field was carried out using experiments comparing the results before and after using a one-group experimental design with pre-test and post-test (one group pre-test-post test design) because This design provides an initial test before treatment.



**Figure 1.** one grup pre-test – post-test design

Description

O<sub>1</sub> = Value Before Treatment

O<sub>2</sub> = Value After Treatment

X = Treatment

The analysis technique used to determine the mean (average) of the pretest and posttest with the following equation 1:

$$x = \frac{\sum x}{N}$$

**Equation 1.** Mean Formula

Strengthen the analysis results using the mean (average) pre-test and post-test, t-test analysis (t-test), dependent sample test, or paired sample t-test. Paired sample t-test is a type of statistical test that aims to compare the averages of two groups paired with each other. Paired samples can be interpreted as samples with the same subject but experiencing two different treatments, namely measurements before and after being given treatment. The t-test formula used for paired samples is as equation 2:

$$t = \frac{D}{\sqrt{\frac{d^2}{N(N-1)}}}$$

**Equation 2.** T-test Formula

**Table 3.** Basic competencies and Indicator

Basic competencies	Indicator
3.2 Describe the life cycles of various types of living things	3.2.1 Give an example of an animal that undergoes complete and incomplete metamorphosis 3.2.2 Explain the process of metamorphosis of some animals 3.2.3 Order the stages of the metamorphosis of some animals

For the desired learning objectives, the development of flipbook learning media is based on several considerations, including technological developments that are increasingly advanced or developing, the characteristics of each student, the learning model that applies to the 2013 curriculum (K-13), which focuses on students (student centred).

*Design Stage*

The design and materials, designs, and instruments used in the development stage are made at the design stage. At the material design stage, it is adjusted to the analysis stage as the determination of

X1 = Variable 1 is a sample of students who have not used flipbook media

X2 = Variable 2 is a sample of students who have used flipbook media

To find out the difference before and after using instructional media, the test results are compared with a t<sub>table</sub> with a significant level of 0.05 or 5% with the following hypothesis:

H<sub>0</sub>: There is no significant difference (5%) between before and after using learning media

H<sub>1</sub>: There is a significant difference (5%) between before and after using learning media

Decision-making:

- a. If t<sub>count</sub> > t<sub>table</sub>, then the result is significant, which means H<sub>1</sub> is accepted.
- b. If t<sub>count</sub> < t<sub>table</sub>, then the result is insignificant, which means H<sub>1</sub> is rejected.

**Result and Discussion**

*Analyze Stage*

At the analysis stage, perform an initial diagnosis to improve the efficiency and effectiveness of learning. Material analysis is done by identifying the primary material that needs to be taught, collecting and selecting relevant material, and rearranging it systematically. The achievements to be achieved by students are seen in core competencies and essential competencies, which are then translated into indicators and learning objectives. Essential competencies are competencies composed of attitudes, knowledge and skills that are developed by taking into account core competencies; these competencies are developed by taking into account the students' initial abilities and characteristics.

the learning flow in presenting the material. Flipbook design is done by compiling a framework consisting of cover, preface, table of contents, core competencies, essential competencies, competency achievement indicators, learning objectives, concept maps, learning materials, learning activities, bibliography, and the advantages of learning resources. The first stage of the file is created using Microsoft Word, then the second stage of designing learning resources, and the third importing files in PDF form. The material developed is about the animal life cycle (metamorphosis).

*Development Stage*

The making of Flipbook development is adjusted to the design stage. At the stage of developing learning resources, it is carried out by implementing the plans that have been designed at the design stage, namely importing the design of design materials into supporting applications with the following stages; (1) The first step is to import the file to PDF, which is to convert from a word file to a PDF file. (2) The second stage is editing the appearance of the book or designing the appearance of the book using edit pages according to the desired appearance. (3) The third stage is to change the file format using Apply Changes. (4) The fourth stage is Publish, which includes parts of the digital book such as additional videos and images. (5) The fifth stage of Online Upload is to store or upload materials online. (6) The sixth stage of HTML5 Version functions to change the desired version of the digital book file. (7) In the seventh stage, Flip functions to

change the display text on the digital book. (8) The last stage is Slide, which selects the desired slide shape.

Based on the stages, starting from the content outline, making flowcharts, and designing the interface, an evaluation from the experts was carried out at each stage; in the content outline creation section, a discussion of the suitability of the objectives of media development was carried out. During the design process, there were many inputs from several experts, such as the form of material design used, videos that matched the material and image designs that matched the explanation of the material on the media. The design process is not much different from evaluating content creation, namely some input and evaluation from experts. During the design process, there were many inputs from several experts, such as the form of material design used, videos that matched the material and image designs that matched the explanation of the material on the media.

**Table 4.** Learning Media Expert Validation Results

Aspect	Score Obtained	Maximum score	Percentage	Criteria
Ease of using Media	19	20	95	very good
Interface	32	35	91,4	very good
Subject Suitability	30	30	100	very good
Programming	14	15	93,3	very good
Total number	95	100	94,92	very good

Table 4 shows the validation results of the design experts, obtained a percentage of 94.92%. The percentage obtained from the validation of the instructional media design has the criteria of "Very Good/valid", so Flipbook is feasible to be used for

testing but must be corrected first according to the suggestions given by the validator.

**Table 5.** Material Expert Validation Results

Aspect	Score Obtained	Maximum score	Percentage	Criteria
Ease of using Media	18	20	90	very good
material concept	34	35	97,1	very good
Subject Suitability	28	30	93,3	very good
Programming	14	15	93,3	very good
Total number	95	100	93,4	very good

Table 5 shows the results of material expert validation obtained a percentage of 93.4%. The percentage obtained from the material validation has the criteria of "Very Good/valid", then the Flipbook is feasible to be used for testing but must be corrected first by the suggestions given by the validator.

*Implementation Stage*

The trial is used to see the effectiveness of the flipbook media that has been developed. The trial was conducted on a small scale involving a teacher and 20 students. Furthermore, the researchers distributed the questionnaire via WhatsApp as a link. The questionnaire contains several statement indicators. Respondent test results can be seen in the following table 6;

**Table 6.** Teacher Respondent Results

Total	53
Average	4.41
Category	strongly agree

Table 6 shows that the teacher's assessment of learning resources in the form of a Flipbook that has been developed Strongly agrees with the assessment results of 4.41. Observer assessed that learning resources in the form of Flipbooks that were developed could help teachers deliver material on the animal life cycle (metamorphosis) and were very practical as a learning resource both in terms of appearance and use, material and learning.

**Table 7.** Student Respondent Trial Results

Total	1800
Average	3.60



Category	Agree
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Based on Table 7, the student's assessment questionnaire on learning resources in the form of a Flipbook developed has an agree category. Seen from the average value obtained is 3.6%, in terms of appearance, material and motivation. The results have shown that the learning resource in the form of a Flipbook in science learning on the material of the animal life cycle (metamorphosis) that was developed is practical to be used as a learning resource.

**Table 8.** Pre-test and post-test Scores

	Pre-test	Post-test
Total	1810	2527
Average	60.30	84.20

Based on the calculation using the mean formula above, the average pre-test score is 60.3, and the post-test average is 84.2. shows that the post-test score is better than the pre-test score. That is, there are differences in students' understanding of flipbook media use. The pre-test and post-test value data were then analyzed through a t-test with a significance level of 0.05. This analytical technique is used to prove the significance of differences using the developed flipbook media with teaching materials commonly used in schools.

**Table 9.** The results of the Pre-test and Post-test field evaluations with the t-test formula

	Pre-test	Post-test	(X2-X1)	d <sup>2</sup>
Total	1810	2527	715	16175

Based on the results of the pre-test and post-test that have been obtained, then a t-test is carried out using the t-test formula. From the results of calculations that have been carried out using the t-test formula described above, it is obtained that the  $t_{count}$  is 5.52, Furthermore, in testing the hypothesis, it is determined by the following steps,

- If the value of  $t_{count}$  is smaller than  $t_{table}$ , then the result is non-significant, meaning that  $H_1$  is rejected and  $H_0$  is accepted.
- If the value of  $t_{count}$  is greater than  $t_{table}$ , then the result is significant, meaning that  $H_1$  is accepted and  $H_0$  is rejected.

With a significant degree ( $\alpha$ ) = 0.05 , So  $t_{table}$  is 2,063. Results obtained  $t_{count} > t_{table}$  then the results are significant, namely,  $H_1$  was accepted and  $H_0$  was rejected.

- $H_0$  = There is no difference in the level of understanding between before and after using the flipbook media. (Rejected)
- $H_1$  = There is a difference in the level of understanding between before and after using the flipbook media. (accepted)

The results of the t-test that has been carried out show differences in the average scores of students before and after using the developed product. Shows

that the use of the given flipbook media can improve the understanding of fourth-grade students at SDN Poja II Sumenep.

## Discussion

Learning resources in Flipbooks were developed to facilitate teacher and student learning individually and in groups. The development aims to produce learning resources in the form of Flipbooks on science learning on animal life cycle material (metamorphosis). At the analysis stage, observations were made and collaborated with the teacher to obtain the data needed for learning resources in the form of Flipbooks. Things that need to be analyzed are curriculum analysis, student character analysis, and needs analysis (Parlin, Iswanto, & Budi, 2015). Curriculum analysis is carried out by considering the material of the animal life cycle (metamorphosis), which will be developed in learning resources, adjusting to Competency Standards, Basic Competencies, and indicators of student achievement that the subject matter must achieve. The aim of the material being developed is by school standards (Pixyoriza, 2018). The curriculum used at SDN Poja II Sumenep is Curriculum 2013 (K-13). Student analysis studies student characteristics, including abilities, background knowledge, and levels of student cognitive development. The analysis's results will be used as a frame of reference in compiling learning resources (Hardiansyah & AR, 2022a). From the results of the questionnaire, it can be concluded that: Students have difficulty learning because the learning resources used by students are limited, one book for two students, learning resources are often left behind either at home or at school, and students use gadgets more often than open their books and students prefer to study independently. Furthermore, needs analysis aims to determine what students or educators need in learning interactions. This analysis produces what matches the character of students, makes it easier for educators to make and use them, as well as adjustments to the material that will be used in the development of this learning resource (Hardiansyah & Mas'odi, 2022).

The design and materials, designs, and instruments used in the development stage are made at the design stage. At the material design stage, it is adjusted to the above analysis results by determining the learning flow in presenting the material. After that, make instruments that will be used in validation and questionnaires for field trials (Pixyoriza, 2018). The third stage is a development where at this stage, flipbook media analysis is carried out through several processes, namely; validity test and trial of learning media to produce effective and efficient learning media. Validation was carried out by learning media design

experts and material experts. Based on the design expert's validation assessment results, obtaining a percentage of 94.92%. The material expert validation assessment obtained a percentage of 93.4%. Through the assessment results, it can be concluded that the feasibility of learning resources in the form of Flipbooks can be declared "valid" to be used and tested in the field, but before that, revisions are made on the advice given by experts.

Students obtained responses through questionnaires distributed online via Google from converting into link form, with 25 students with statements that included 20 points. Questionnaire sheets were distributed after the learning process using Flipbook media. So the results of the questionnaire obtained using Flipbook learning media in Class IV SDN Poja II Sumenep were obtained with an average value of 3.6, which was categorized as "Agree," While the responses obtained from the teacher were distributed directly with statements that included 12 points. The results obtained from the teacher's response where the average value obtained is 4.41 with the "Strongly Agree" category. So it can be concluded that flipbook learning media is effectively used in the learning process where the research shows a positive influence between Flipbook learning media users on science subjects. This is because the Flipbook learning media is simple, easy to access anywhere, presents images, animations, audio, and video, and is practical. So that by using the Flipbook learning media in this study, can attract students' interest in learning. Learning media is everything used to convey and distribute messages from sources in a planned manner to create effective and efficient learning conditions. By using learning media students are expected to be motivated in learning and can be more active in the learning process.

## Conclusion

Learning resources like flipbooks on science learning were developed in the appropriate category. The feasibility of learning resources in the form of Flipbooks can be seen through the assessment of 2 expert experts, namely learning media design experts and material experts. Learning resources in the form of flipbooks can be feasible and can be used as a learning resource in science learning material for animal life cycles (metamorphosis). The effectiveness of flipbook learning media can be said to be effective by looking at media that have met the criteria in interactive multimedia assessment. The flipbook media is designed very simply. The research shows that the

media that has been developed is declared effective according to the results of the respondents.

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