



Development of Pop Up Book To Increase Interest and Learning Outcomes

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Article Info	Abstract
Article History : Received August 2021 Accepted October 2021 Published April 2022 Keywords: Pop Up Book, Learning Intest, Learning Out- comes	<p>The learning of integrated science should be supported by several things including the existence of Learning Media. The reality is that at MTs Putera Sunniyyah Selo, there are not many interesting learning media found. Even though the learning media is very important for the realization of student interest and learning outcomes. Therefore, it is necessary to develop Pop Up Book as a Learning Media. The purpose of this research is to develop Pop Up Book as learning media material on the interaction of living things with the environment, its validity and effectiveness as a learning media, and to find out how much student interest in using of Pop Up Books as a learning media. The method of research is use Research and Development (R&D). The validity test was carried out by media experts and material experts using a questionnaire. The effectiveness of learning media was measured based on the N-Gain value indicator from the pretest-posttest results, as well as the teacher and student response questionnaire scores. Student learning interest is measured based on the questionnaire score of student learning interest. The test of the effectiveness of learning media was carried out at MTs Putera Sunniyyah Selo, Tawangharjo District, Grobogan Regency, in grade VII. The results showed that the validation score of the media expert reached 88.19%, while the validation score of the material expert validation reached 90.69% with an average of 89.44%, which means that the learning media could be elassified valid. The results of the analysis of the effectiveness of the media based on the N-Gain value were 0.8, which means that the increase in the pretest posttest could be classified as high criteria. The scores for the questionnaire responses from teachers and students were 92.50% and 86.46%, both of which were very effective. The percentage of interest in learning reached 90.09% with very good criteria. Based on these indicators, it can be concluded that the Pop Up Book as a Learning Media is declared valid by media and material experts, is effectively used in learning and is able to generate interest in learning at MTs Putera Sunniyyah Selo in the very good category.</p>

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INTRODUCTION

Natural Sciences is knowledge obtained through data collection by experimentation, observation, and deduction to produce a reliable explanation of a phenomenon. Natural Sciences is a subject that studies events that occur in the real life (Atmojo & Kurniawati, 2018). Science education is expected to be a vehicle for students to learn about themselves and the natural surroundings, as well as the prospect of further development in applying it in everyday life. The development of science and technology and demands for improving the quality of learning are increasingly encouraging efforts to renew the use of technological results in the learning process (Rahmi, 2018). Based on the information and observations, it is found that students at MTs Putera Sunniyyah Selo are lacking interested in science lessons, this is evidenced by the results of the tests and learning completeness achieved are still low, less than the minimum passing grade criteria determined by the school. In addition, the problem that exists is the diversity of learning styles and methods of different learners.

A part of the science material that students learn in school is about the interaction of living things with the environment, which in practice usually teachers use the lecture method. In this learning method the teacher is more active than the students. Therefore we need a variety of teaching so that these efforts are expected to show students that science lessons are fun, not scary and not difficult, so that it is expected to improve student learning outcomes. Media is a tool for teachers in conveying various learning materials to students so that it is easier to convey them. Media is part of the education scheme, media plays a very important role in the learning process, such as providing the same stimulus, creating the same perception, and equalizing the learning experience of students. The use of media is also able to maximize learning and can deliver lesson material optimally. Therefore, learning media is needed that can attract students' attention to science subjects. Pop Up Book was chosen as an alternative media, because Pop Up

Book is one of the creative fields of engineering paper. Which is increasingly popular and is developing in Indonesia. Pop Up Books have developed a lot in the market, but are still dominated by foreign works / products, while local is still very limited. The advantage of Pop Up Book media is that it provides special experiences for students because it involves students such as sliding, opening, and folding parts of Pop Up Book (Meilia et al. 2017). This Pop Up Book media can not only be used when learning in class, Pop media. This Up Book can also be used in independent learning because the Pop Up Book media is packaged practically which can be carried anywhere (Nur et al., 2017).

Based on this background, it is important to conduct research on Pop Up Books as a learning media to overcome these problems. If the problem is allowed to continue, it will have a negative impact on students, teachers and madrasah. Students will continue to find it difficult to understand the material interaction of living things with the environment. The development of Pop Up Book learning media on the theme of the Interaction of Living Creatures with the Environment will be carried out and tested for its effectiveness on students of grade VII of MTs Putera Sunniyyah Selo. So that it can increase the interest and learning outcomes of students. This study aims to develop Pop Up Books as a learning medium to increase interest and learning outcomes.

METHODS

The research was conducted at MTs Putera Sunniyyah Selo, Tawangharjo District, Grobogan Regency in class VII with a total of 132 students. The data collection was carried out in two meetings based on the learning implementation plan. This research is using development research (R & D). The research steps used the ADDIE development model (Analysis, Design, Development or Production, Implementation or Delivery and Evaluations) as illustrated in Figure 1 (Mulyatiningsih, 2011).

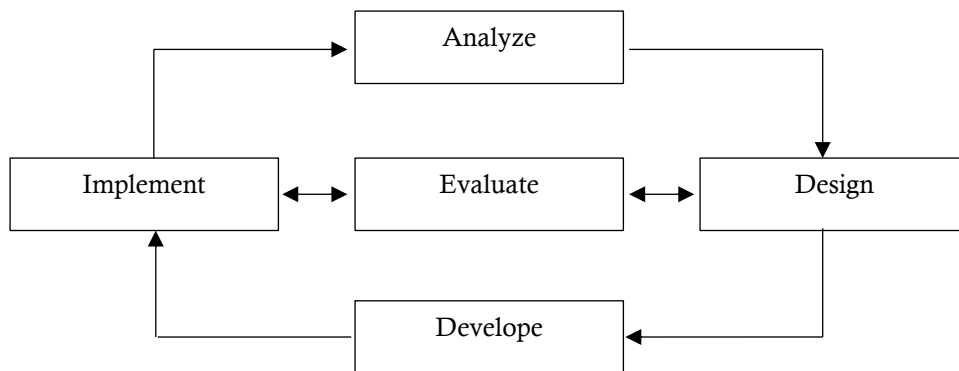


Figure 1. ADDIE Development steps

The activity was initiated by analyzing the need of media development media that has existed in madrasah so far. The media used are appropriate or not for learning so it is necessary to conduct research and development of learning media according to the needs of students, teachers and madrasah.

In designing learning media, the design stage is similar to designing teaching and learning activities. At this stage of the activity, it has set learning objectives, designing media concepts by making a media content description script, determining the supporting images on each display, and making a media model.

The realization of product design is to validate the prototype to the validator. After that it also realizes the model into a product based on the suggestions and input of the validators, so that it can produce products that are feasible to be tested on students in learning.

Product trials were carried out in a population of 132 students. Class VII A, VII B, VII C and class VII D. The trial was carried out in two meetings. Before learning to use the pop up book at the first meeting, an interpretation was conducted. This test aims to determine the level of students' understanding of the interaction of living things with the environment before using Pop Up Book learning media. After the pretest was carried out, it was followed by an introduction to the product being developed, namely the Pop Up Book media as well as a discussion of the initial material on the media.

The second meeting is applying pop up book media in science learning with the material of

the interaction of living things with the environment. review a little of the material that was previously delivered at the first meeting, then continue the material in the media. At the end of the lesson, do a posttest by giving the same written test as the questions given during the pretest. This posttest is done to find out how the level of student understanding of the material on the interaction of living things with the environment. Then a student response questionnaire to find out the feasibility of the media and a validation questionnaire on students' interest in using the media against the Pop Up Book.

Evaluation is carried out by distributing student and teacher response questionnaires after using the products that have been developed. The results of the evaluation are used to provide feedback to the researcher and the students. Revisions are made based on the results of the evaluation and the needs that have not been met in the methods / models / learning media that have been developed.

RESULTS AND DISCUSSION

Research on the Development of Pop Up Books as a Learning Media to increase interest and learning outcomes at MTs Putera Sunniyyah Selo has been carried out with the following results

Pop Up Book Media Validity

Media Pop Up Book is validated by media experts and material experts as experts in their respective fields. The results of the media expert's validation are presented in Table 1.

Table 1. The results of the expert validation test for the Pop Up Book media as a learning

Nu	Assesment Indicators	Score	Amount
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		Expert I	Expert II	Expert III		Percentage (%)
1.	Media size compatibility	4	3	4	11	91.67
2.	The appearance of a layout element on the cover	4	3	4	11	91.67
3.	Displays the center of view	4	4	4	11	91.67
4.	Color harmonious layout elements	4	4	4	12	100
5.	The letters used are interesting and easy to read					
	The size of the media title is more dominant and proportional to the size of the media, the name of the author	4	4	4	12	100
	The color of the media title contrasts with the background	3	3	4	10	83.30
6.	Do not use too many typeface combinations	3	4	4	11	91.67
7.	Cover illustration of media					
	Describe the content / teaching material and reveal the character of the object	4	4	4	12	100
	The shape, color, size, proportion of the object are in accordance with reality	3	3	4	10	83.30
8.	Layout consistency					
	The placement of layout elements is consistent based on the pattern	3	4	4	11	91.67
	The separation between paragraphs is clear	3	3	4	10	83.30
9.	Harmonious layout elements					
	Proportional printable area and margins	4	4	4	12	100
	The margin of two adjoining pages is proportional	4	2	4	10	83.30
	Spacing between text and illustrations is appropriate	3	3	4	10	83.30
10.	Complete layout elements					
	Title of learning activities, subtitles of learning activities and number of pages / photos	4	2	4	10	83.30
	Illustrations and captions	4	3	4	11	91.67
11.	Layout speeds up the page					
	Placement of decoration / illustration as background does not interfere with title, text, page numbers	3	3	3	9	75.00
	Placement of titles, subtitles, illustrations and captions does not interfere with understanding	4	2	4	10	83.30
12.	Media Contents					
	Don't use too many fonts	3	4	4	11	91.67
	The use of variations of letters is not excessive	4	3	4	11	91.67
	Spacing between lines of normal text arrangement	3	3	4	10	83.30

13.	Media Content Illustration					
	Able to express the meaning or meaning of objects	4	2	3	9	75.00
	Accurate and proportional form according to reality	3	3	3	9	75.00
	Creative and dynamic	4	3	4	11	91.67
	Average					88.18

The results of the assessment of the developed media expert validator, the results obtained a percentage of 88.18% which means valid.

Furthermore, the results of the validity test by material experts are presented in the Table. 2 as follows.

Table 2. The results of the material expert validation test for the Pop Up Book media as a learning

Nu	Assessment Indicators	Score			Amount	Percentage (%)
		Expert I	Expert II	Expert III		
1.	Systematic consistency of presentation in learning activities	4	3	4	11	91.67
2.	Concept clutter	4	4	4	12	100
3.	Exercise questions at the end of learning activities	4	3	4	11	91.67
4.	Introduction	4	3	4	11	91.67
5.	References	3	2	4	10	83.30
6.	The involvement of students	4	4	4	12	100
7.	Completeness of the material	4	4	4	12	100
8.	Material breadth	3	3	3	9	75.00
9.	Depth of material	3	4	3	10	83.30
10.	Accuracy of concepts and definitions	4	3	4	11	91.67
11.	Accuracy of facts and data	4	3	4	11	91.67
12.	Accuracy of examples and cases	4	3	4	11	91.67
13.	Accuracy of drawings and illustrations	4	3	4	11	91.67
14.	Accuracy of terms	4	4	3	11	91.67
15.	Accuracy of notations, symbols and icons	3	4	3	10	83.30
16.	The suitability of the material with the development of science in the material of the interaction of living things with the environment	4	3	4	11	91.67
17.	Encourage curiosity	4	4	4	12	100
	Average					91.17

The percentage of material validity obtained a percentage of 91.17% which means valid. Pop Up Book was revised based on suggestions from the validator, namely changing the background / media background so that the writing is more clearly legible. This is in accordance with the opinion of Widyaningrum (2017), the combination of font color and background in learning media has an

effect on readability. The choice of colors in the Pop Up Book as a learning media developed is more than one color and combined because it makes the media easier for students to read and it can increase interest in learning and student learning outcomes. Pop Up Book media on the material of interaction between living things and the environment can be used as a media of learning. According to Rahmawati &

Rahman (2018), media designed based on needs analysis can help students to obtain maximum learning outcomes from both psychological, affective and psychological aspects. According to Kuswanto & Radiansah (2018), images on learning media can help students understand the material more easily

measured based on the increase in the N-Gain value and the student and teacher response questionnaires. Before the learning activity was carried out, a pretest was carried out with the result that 27% of the students were declared complete. Meanwhile, the posttest results have increased, namely 96.97% which is declared complete, namely 128 students from 132 students with an increase in N-Gain score of 0.8. Thus the use of Pop Up Books as a learning medium can improve student learning outcomes in the high category. The complete data for student learning outcomes can be seen in Table 3.

Product Effectiveness Test

The Test of the Effectiveness of the Pop Up Book as a Learning Media that was developed was

Tabel 3. Students learning outcoms

Data	Pretest	Posttest
Total students	132	132
Highest score	88	100
Lower score	52	72
Average value	69.2	94.9
∑ students complete	36	128
∑ students are incomplete	96	4
Classical completeness %	27	96.97
Gain Score	0.8	(High)

Based on Table 3. The percentage of classical completeness is 96.97% which indicates that the Pop Up Book as a learning media is effectively used as a

learning medium. To make it easier to read the learning results, it is shown in Figure 2

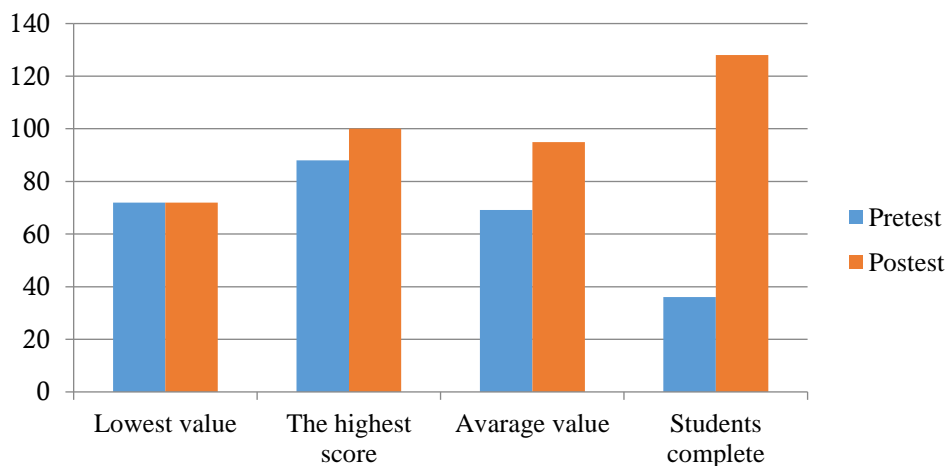


Figure 2. Students leraning outcomes

The results of the questionnaire responses from teachers and students to the Pop Up Book are presented in Table 4.

Table 4. Teachers and students' responses to Pop Up Book as a Learning Media

No	Responden	Instansi	Presentage %	Criteria
1	Science teacher 1	MTs Putera Sunniyyah Selo	95.00	VE
2	Science teacher 2	MTs Putera Sunniyyah Selo	90.00	VE
3	Students 132	MTs Putera Sunniyyah Selo	86.46	VE
	Average		90.49	VE

The result from the research, teacher responses and student responses to Pop Up Book as a learning media reached an average percentage of 90.49% with very effective criteria. So that based on the N-Gain value, teacher and student responses indicate that the Pop Up Book learning media developed meets the Effective indicators for use.

For overall, students have reached the KKM because they feel helped to understand the material using the Pop Up Book which was developed as a media. Thus the use of Pop Up Books as a media for the interaction of living things with the environment has an influence on student learning outcomes. Wicaksono (2020), state that image media is better at improving learning outcomes than other media. Learning that is carried out during research in class students are given the opportunity to be actively involved in learning activities. As stated by Susilowati et al. (2017) the more actively students are involved in the learning process, the more meaningful the student's learning experience is and the more it supports learning outcomes.

Interest to Learn

The object of the research is one hundred and thirty-two. After two meetings. At the end of the study, students were asked to fill out a questionnaire on their interest in learning. The average result of all indicators is 90.09%. From this percentage, it can be said that the Pop Up Book media developed can increase interest in learning, it can be seen from the percentage generated more than 70%. This is in accordance with the statement of Wibowo, (2017), if the average acquisition is above 75%, it is said to be successful. This means that the Pop Up Book learning media developed has an effect on student interest in learning.

The development of students' interest in learning in learning can be seen clearly. For example, at the first meeting, students' curiosity had

begun to emerge where students listened to and paid attention to the teacher's explanation carefully about the Pop Up Book media which would later be used during learning on the material on the Interaction of Living Things with the Environment. Furthermore, students seemed enthusiastic in discussion activities. The development of student interest was evident and enthusiastic in carrying out learning activities contained in the given Pop Up Book media. As stated by Supardi et al., (2018) that interest in learning is attention, the motivation for each individual to learn and pleasure which can make interest in a person. Interest is very influential on learning outcomes because interest is a condition that is important in the success of learning (Meke et al., 2020).

CONCLUSION

The Pop Up Book learning media on the material Of interaction of living things with the environment is declared very valid by media experts and material experts so that it can be used in science learning on the material on the interaction of living things with the environment. The Pop Up Book learning media developed are very effective in increasing student interest in learning and cognitive learning outcomes. Interest in Learning to use Pop Up Book Very good on the material of the interaction of living things with the environment.

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