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**DEVELOPMENT OF POP-UP BOOK LEARNING MEDIA FOR THE FIFTH GRADE NATURAL SCIENCE CONTENT OF THE STATE ELEMENTARY SCHOOL WONOKERTO**

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**ABSTRACT**

This research aims to develop teaching media products in the form of pop-up book learning media. On the content of science class V The state elementary school wonokerto which is valid, practical and effective for use in the learning process. The research method is R&D (Research and development), with the ADDIE development model used analysis, design, development, implementation and evaluation. Based on the results of the analysis of assessments obtained from language validation experts, the average score of 0.87 is included in the high category, material experts have an average score of 0.84 in the high category and media experts have an average score of 0.77 including the fairly high category. Then the results of the practical analysis of students obtained an average of 92% for small groups very practical criteria, and large groups scored 97% very practical criteria and teacher practicality scored 94% very practical criteria. The quality of the pop-up book media seen from the practical aspect is categorized as very practical with an overall score of 94% being very practical. Then the results of the effectiveness analysis obtained an average pretest score of 21.2 and a posttest score of 73.8 and the classical learning completeness criteria obtained a score of 66.7% including the "Good" category.

**Keywords:** Development, Popup Book Media, Science Content.

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**INTRODUCTION**

Learning is an aptitude that must be developed by humans from birth and continues to grow along the way a person lives. Yuberti (2013:1) argued that learning is a multi-faceted process that happens to everyone and lasts a lifetime. One sign that someone has learned something is a change in behavior in him or her. In line with Pane dan Dasopang (2017:334), learning is interpreted as a process of behavior change as a result of individual interaction with the environment. Learning in elementary schools that directs students to have organized knowledge, ideas and concepts about the natural environment is called Natural Sciences, obtained from experience through scientific processes including investigation, compilation and presentation of ideas on the nature of science learning.

The science learning process does require interesting media in order to motivate students to learn, to find out systematic material about nature. Here we need learning media as a tool to strengthen the stimulus to the thoughts, feelings, abilities and attention of students in the process of learning science content in elementary schools. The media can be in the form of teaching aids or teaching materials.

Learning media is a means used to convey messages to students to stimulate thoughts, feelings and attention so that the learning process is effective and can achieve goals. According to Hamalik in Dewanti, dkk (2018:222), learning media can create effective learning situations, accelerate the learning process, and help students in an effort to understand the material presented by the teacher in class.

Based on the results of observations carried out by researchers to the homeroom teacher of the fifth grade of The state elementary school wonokerto on November 31, 2021, the researchers obtained information in the form of a problem of low ability and interest in learning in class when the students have difficulties to master the material because of their low learning motivation.

One way to solve the problem above is to use pop-up book learning media. It is a three-dimensional book and allows interactive motion elements which contain visual elements (Sentarik dan Kusmariyatni, 2020:212). The use of this media is to attract students' attention and to create a pleasant learning atmosphere so that it can lead to self-confidence, and their growing learning motivation makes them more active in learning, and encourages students to be able to socialize with their peers.

Based on the description above, the authors develops the Pop-Up Book learning media as a learning medium by incorporating valid, practical and effective elements to complete the learning outcomes of fifth grade students in elementary school and for that the author conducts the research with entitled "Development of Pop-up Book Learning Media on Natural Science Subject for Class V The state elementary school wonokerto".

### **METHOD**

This study used the Research and Development (R&D) method and the concept used by the researchers for the development of the poop up book media was the ADDIE development model. According to Cahyadi (2019:36), ADDIE instructional model is an instructional process consisting of five phases, namely *Analysis, Design, Development,*

*Implementation* and *Evaluation*. According Soesilo dan Munthe (2020:233), it has the advantage of being simpler, more organized, and widely used in making programs and learning products effectively and validated by experts. Meanwhile, according to Prasetyo and Prihatnani (2018:16) the advantages of the ADDIE model are: (1) paying attention to the development of students' cognitive, affective and psychomotor domains (2) being consistent and reliable (3) interdependence with each other, so there are no elements separated from the system, and (4) simple and structured systematically so that this design model is easy to learn by educators. This is reinforced by Rosita (2019:71) that the advantages of the ADDIE model are simple and easy to learn and the structure is very systematic. As we know that the ADDIE model consists of five interrelated components and is structured systematically, these five stages are very simple when compared to other design models.

The steps of the ADDIE development model include conducting an *analysis*, which according to Hamzah (2019:33), it is the stage where the researcher conducts needs analysis, identifies problems, and performs task analysis. The second stage is the *design* stage carried out by determining the elements needed in the pop-up book media product that will be developed. Then it enters to the *development* stage, making a validity questionnaire to test the validity of the product through media and material experts, questionnaires for teachers and students' responses. In the *implementation* phase after the media was declared valid by experts, the pop-up book media product was tested for practicality in small groups consisting of 6 students and large groups consisting of all fifth grade elementary school students and tested the effectiveness of the pop-up book media. The *Evaluation* Stage is to analyze the media that still have shortcomings and weaknesses.

The instrument of data collection was done by making observations. In the observation of the initial data collection, the researchers were not directly involved in learning. They only observed directly without being involved in the learning process. According to Sugiyono (2016: 231), interviews are used as a data collection technique if the researchers want to conduct a preliminary study to find problems and potentials that must be investigated. In this study, a validation questionnaire was used for experts and a practicality questionnaire was used for the students and teachers. According to Hamzah (2019:107), questionnaire is a data collection technique that is carried out by giving several written statements to research subjects related to the topic to be studied.

The results of the questionnaire in the form of questions were analyzed using a Likert scale. Then the test was an official data collection tool because it was full of limitations (Wulan and Rusdiana, 2014: 306). Tests were used to assess and measure learning outcomes.

The data analysis technique used descriptive statistics. According to Sugiyono (2016: 254) descriptive statistics are statistics used to analyze data by describing or describing the data that has been collected. According to Arikunto in Gusdiana et al (2021:43) validation is a measure that shows the levels of validity or validity of an instrument. Validation tests are carried out by experts in their fields. Validation experts analyze the designed pop-up book media and provide suggestions and input. Pop-up book media validity research data were obtained from linguists, material experts and media experts on the validity assessment sheet data. Giving the validity value used with the following formula:

$$V = \sum s / [n(c-1)]$$

(Nabila et al., 2021)

Explanation:

s = r - I<sub>o</sub>

I<sub>o</sub> = the lowest validity rating score (in this case, it is 1)

c = the highest validity rating score (in this case, it is 5)

r = the score given by a rater

The practicality of the pop-up book media at the State Elementary School Wonokerto can be seen from the results of the assessment on the students and teachers practicality sheets in which the teachers and students' response questionnaires were given a score for each item with the answers "Yes" (1) and "No" (0). The teachers' response questionnaire was given a score of very good (5), good (4), enough (3), less enough (2), very poor (1). The score of practicality was given by the following formula:

$$\text{Practicality Level} = \frac{\text{total score achieved}}{\text{number of total score}} \times 100\%$$

Febriandi dalam (Nabila dkk, 2021)

The analysis of the effectiveness of the Pop-up Book learning media was carried out by looking at the students' achievements in completing the evaluation of learning

outcomes. Calculating the students' learning outcomes percentage used the following formula:

$$\% \text{ individual mastery} = \frac{\text{score achieved by a student}}{\text{maximum score}} \times 100\%$$

(Mawartiningsih dan Sholikah, 2018)

$$\% \text{ classical learning mastery} = \frac{\text{the number of mastery students}}{\text{total students}} \times 100\%$$

(Mawartiningsih dan Sholikah, 2018)

## RESULTS AND DISCUSSION

### Results

Discussion of the results of research and testing obtained presented in the form of theoretical descriptions, both qualitatively and quantitatively. The results of the experiment should be displayed in either a graph or table. For charts can follow the format for tables, diagrams, and images.

This research was conducted at the State Elementary School Wonokerto. The respondents in this study were the fifth graders. This study was already carried out according to the stages of the research and development method, using the ADDIE development model. According to Hamzah (2019:33) there are five stages in the ADDIE development model, namely: *Analysis, Design, Development, Implementation, Evaluation* with the aim of producing products in the form of pop-up learning media that is valid, practical and effective.

Validation was carried out by 3 linguist experts, media and material experts providing validation sheets to validation experts to get input and suggestions from validation experts who had been prepared using a Likert scale, namely a score of 1 to 5 with very good information (5), good (4), quite good (3), less good (2) very poor (1). So that the pop-up book media can be carried out and tested in the field. The results of the research of the three validators above can be concluded and analyzed using the Aiken'V formula to determine the validation of pop-up book media on science content for class V of the State Elementary School Wonokerto.

The linguist' validation validated by giving an assessment of the pop-up book media product given based on 6 questions on the pop-up book media on the science

content of class V the State Elementary School Wonokerto from the use of the language in the pop-up book media adjusted to the correct rules in Indonesian. The experts also provided advices and inputs on the pop-up book media. The results of the experts' assessment were analyzed to determine the validation of pop-up book media using Aikemn's V. The average result was 0.87 which was included in the high criteria category V 0.80 and could be said to be valid so that the pop-up book learning media at IPA content for class V the State Elementary School Wonokerto was valid in language.

The material expert's validation validated by providing an assessment of the pop-up book learning media product that was given based on 7 statements on the pop-up book learning media on the science content of class V the State Elementary School Wonokerto from the material in the pop-up book media adjusted to the correct rules in knowledge he has. The experts also provided suggestions and inputs on the pop-up book learning media. The results of the experts' assessment were analyzed to determine the validation of the material on the pop-up book learning media using Aiken's V, the average result was 0.84 which was included in the high category V 0.80 and it can be said to be valid so that the pop-up book learning media on science content class V the State Elementary School Wonokerto is valid in terms of material.

The media experts' validation validated by providing an assessment of the pop-up book learning media product that is given based on 8 statements on the pop-up book learning media on the science content of class V the State Elementary School Wonokerto from the attractiveness of the media in the pop-up book media adjusted to the correct rules in his knowledge. The experts also provided suggestions and inputs on the pop-up book learning media. The results of the expert assessment were analyzed to determine the validation of the media on the pop-up book learning media using Aiken's V, the average result was 0.77 which was included in the fairly high information category  $0.60 < V < 0.80$  and it can be said to be valid so that the pop-up learning media The up book on the science content of class V the State Elementary School Wonokerto is valid in terms of media.

Based on the overall assessment of the validity of the pop-up book learning media on the science content of grade V Elementary School given by the three experts, namely linguists, material experts and media experts, the pop-up book learning media that has been compiled obtained an assessment and has been adjusted to Aiken's V table was categorized as valid for use in the learning process. The expert validation analysis by

filling out the validation sheet showed that the pop-up book learning media is valid for use in the learning process with an average of 0.82 which is included in the category of Aiken's V validation interpretation included in category V 0.80 with a high description or said to be valid.

The small group trial conducted in the fifth grade of The State Elementary School Wonokerto consisted of 6 people with different abilities, namely high, medium and low abilities according to the advice of the fifth grade homeroom teacher, Mrs. Ngatini, S. Pd. on April 23, 2022. Then the students were gathered in the classroom to fill out their practicality instrument sheets and the researchers explained in advance how to fill in the sheet with 7 questions by placing a checklist (II) on the instrument questionnaire. The students' responses answered "Yes" and "Not". The pop-up book media criteria are calculated by the percentage of 7 student response statements after studying the pop-up book. The data obtained from 1 aspect of 7 indicators with very practical criteria with an average percentage of 92% which means that the pop-up book learning media on science content Class V of The State Elementary School Wonokerto does not need to make improvements to the products that have been developed.

A large group trial conducted by all students in class V the State Elementary School Wonokerto totaled 30 people on April 23, 2022. Then, the students were gathered in the classroom to fill out the students' practicality instrument sheet and the researchers explained in advance how to fill in the sheet with 7 questions by giving a checklist (II) on the questionnaire instrument student response answers "Yes" and "No". The pop-up book media criteria are calculated with a percentage of 7 response statements of all fifth grade students of the State Elementary School Wonokerto totaling 30 people after studying the pop-up book analyzed the data obtained from 1 aspect of 7 indicators with very practical criteria with an average percentage of 97% which means that the pop-up book learning media in the 5th grade science content of The State Elementary School Wonokerto does not need to make improvements to the products that have been developed.

The results of the pop-up book media trial for the fifth grade teachers of the State Elementary School Wonokerto was conducted on April 23, 2022. The instrument sheets or the teacher response questionnaire consisting of 7 questions for the teachers to answer on the questionnaire sheet by giving a checklist (II) with a score used 5 (very good), 4 (good), 3 (good enough), 2 (poorly good), 1 (very not good) with information to

determine the practicality of the pop-up book media. The aim was to determine the practicality of the pop-up book media developed by the researcher. The criteria for the teacher's response were calculated based on 7 statements that were analyzed so as to obtain the results of the pop-up book media with very practical criteria. With the respondent, Mrs. Ngatini S.Pd. which obtained an average percentage of 94% in very practical criteria, so that the pop-up book media is practically used in the learning process.

The effectiveness of the pop-up book media was seen from the results of the pretest and posttest of the fifth grade students of the State Elementary School Wonokerto. The pretest results obtained the mean of 21.2, many students experienced incompleteness in answering 10 questions with different scores, after performing the appropriate pretest with the abilities possessed by the students, and then, they were treated by using pop-up book learning media on the water cycle material. After learning by using pop-up book, the students work on posttest test items again, 10 test items questions with different scores and obtained an average score of 73.8. In the analysis of learning outcomes obtained 66.7% of classical learning completeness is included in the good category.

### **Discussion**

After validated and declared valid based on the assessment of the linguists, the pop-up book media obtained an average percentage of 0.87 and categorized as "high", the assessment of material experts gave an average percentage of 0.84 and categorized as "high", and the assessment of media experts gave an average percentage of 0.77 and categorized "high enough". And it was tested on the fifth grade students of the State Elementary School Wonokerto. A small group of 6 students obtained 92% and categorized "very practical". A large group with a total of 30 students obtained 97% and categorized "very practical". The homeroom teacher for class V the State Elementary School Wonokerto obtained a percentage of 94% in the "very practical" category. As well as the effectiveness of the pop-up book media obtained 73.8 with the effective category. And the classical learning completeness criteria obtained a score of 66.7% including the good category.

Based on the results of the validation analysis of the pop-up book learning media product on the 5th grade science content of the State Elementary School Wonokerto, it



can be said that, overall, the pop-up book media developed was categorized as valid, practical and effective to be used by the fifth grade students of the State Elementary School Wonokerto.

### CONCLUSIONS

Based on the results of research on the development of pop-up book learning media on the content of the 5<sup>th</sup> grade science at The State Elementary School Wonokerto in the 2021/2022 academic year, the conclusions that can be drawn are:

1. The developed pop-up book teaching media is said to be "valid" with high assessment score or can be said to be valid, based on the results of the assessment of the teaching media from the three validator experts, namely the validator, the linguist, the material expert, and the media expert.
2. The practicality of the pop-up book teaching media is measured through the results of a questionnaire obtained through two stages of trials which include small group trials involving 6 students who are categorized as very practical, then the results of large group trials involving 30 students of class V the State Elementary School Wonokerto categorized as a very practical category. And the practicality test of the pop-up book teaching media by the fifth grade teacher of The State Elementary School Wonokerto is categorized as very practical.
3. Based on the results of the trial, it is known that the student responses are categorized as very good, which means that the pop-up book teaching media in the 5<sup>th</sup> grade of the elementary school science content of is very practical or easy to use.

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