

## **DEVELOPMENT OF *LOCALLY-BASED POP-UP BOOK MEDIA***

### ***WISDOM ON THE MATERIAL OF NATURAL APPEARANCE IN INDONESIA***

#### **FOR GRADE V ELEMENTARY SCHOOL STUDENTS**

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**Abstract:** IPAS independent curriculum there is material that introduces how and what is on our earth, to support this, easy media such as *Pop-Up Book* learning media are needed. Based on the results of interviews and observations at SD Negeri Pasuruhan, Wonosobo Regency. still applying conventional learning learning outside the classroom is very limited, only based on pictures in printed books and objects around students, the use of media is still very limited, students are easily bored when learning. So they need learning media that can be used at any time that can display interesting pictures and explanations and can hone students' knowledge. Thus, the purpose of this study is to produce *Local Wisdom-based Pop-Up Book media* on quality, feasible and effective natural appearance material in Indonesia for grade V elementary school students Based on the results of the percentage of assessments conducted by media experts, material experts, and learning experts, each received a score of 96%, 87.2% and 82%. The percentage results are added up and then averaged to get an average score of 88.4% and fall into the very quality category. The results of teacher and student responses received 100% responses into the category of very qualified. The normality test results showed that the significance values of *the experimental class pretest* and *posttest* were 0.077 and 0.101 so that  $>0.05$ . Homogeneity shows a *pretest* and *posttest* significance value of 0.117 so that it is greater than 0.05. The paired sample *t-test* obtained a significance value of  $<0.001$  smaller than the significance of 0.05, so that  $H_0$  was rejected and  $H_a$  was accepted. The conclusion from this *paired sample t-test* is that there are differences before and after the use of *Pop-Up Book Media* based on *Local wisdom* material of natural appearance class V elementary school. This means that this media is effectively used on grade V elementary school students.

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**Keywords:** Media Development, *Pop-Up Book*, Natural Features, *Local Wisdom*

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## INTRODUCTION

IPAS in the independent curriculum is a form of merging science subjects integrated into social studies subjects. IPAS is an integrated study that guides students to develop critical and rational thinking capacities (Anggita et al., 2023: 78). There is a combination of science and social studies subjects into Natural and Social Sciences (IPAS) at the elementary level because students look at it in an integrated way and students think simply (Anggita et al., 2023: 80). Science education has a role in realizing the Pancasila Student Profile as an ideal picture of the profile of Indonesian students. Science subjects in elementary schools themselves should have their own attraction or curiosity for students to learn the material contained in science lessons, this is in accordance with the opinion according to Anggita et al., (2023 : 81) concluded that students are happy with IPAS learning because science learning can be directly felt in the real experience experienced by students. IPAS independent curriculum itself has material in which it introduces how and what is on our earth, which of course there are several natural features displayed to be introduced to students, as well as in it there are parts of water and land and air. In the waters there are such as (lakes, swamps, rivers, seas) land parts namely (hills, mountains, valleys, lowlands, highlands), in the uadara itself there are ozone layers, toposphere, stratosphere, mesosphere, thermosphere, and exosphere (Ghaniem et al., 2021: 125)

Indonesia itself as a country rich in natural resources, cultural diversity and local wisdom through IPAS is expected to explore the wealth of local wisdom related to IPAS including using it in learning to know how natural features exist on earth through available local wisdom. In line with opinion according to Astuti, (2022 : 671) The Free Learning Policy provides independence for educational units to innovate in accordance with existing culture, local wisdom, socio-economic and infrastructure. Therefore, the main focus to be achieved from learning science in elementary schools is not on how much material content can be absorbed by students, but from how much competence students have in utilizing the knowledge they have. Taking into account that elementary age children still see everything as it is, intact and integrated, science and social studies learning is simplified into one subject, namely IPAS. The material is acquainted with our earth class V in which it introduces students to the forms of various kinds of natural features that exist on earth and its air layers which divide it into 3 (three) parts, namely the lithosphere (land), hydrosphere (waters), atmosphere (air). To learn the material so that it is easily absorbed by students about the information mapped, the provision of information is combined with adopting the value of existing local wisdom, to support this, easy media such as learning media are needed *Pop-Up Book*.

Media *Pop-Up Book* Included in learning media. (Anies & Neni, 2018: 1538) Explaining *Pop-Up Book* media is a type of 3D media that can provide interesting effects, because every page opened will show an embossed image and material contained in *Pop-Up Book* Can be adjusted to the teaching material you want to deliver. Putri et al., ( 2019 : 170) *Pop up* is a type of book or card in which there are folds or pieces of images that appear so as to form three-dimensional objects (3D). Alviolita & Huda, ( 2019 : 52 ) *Pop up book* is a type of book in which there are folds of images that are cut and appear to form a three-dimensional image when the page is opened. Based on the above opinion, it can be concluded that *Pop-Up Book* is a book in the form of 3-dimensional media in which it can bring up interesting effects such as props which can later provide new and interesting experiences to grade V elementary students in learning material to recognize the shape of the earth.

Based on the results of interviews and observations at SD Negeri Pasuruhan, Watumalang District, Wonosobo Regency, Central Java on July 12, 2023, grade V teachers of SD Negeri Pasuruhan Anggoro Apriliyanto, S.Pd at SD N Pasuruhan still apply conventional learning using only lectures and learning outside the classroom is also very limited, and only based on pictures or explanations in printed books, packages and objects around students, So that the use of media is still very limited in this material, students tend to be easily

saturated when learning. In his interview, he conveyed that the presentation of material that seemed ordinary with the lecture method sometimes made students less aware of the material presented and made learning less conducive because students tend to get bored quickly. So far, the media used to display images and explanations is using digital media in the form of projectors, but the obstacle is because the number of projectors is limited to only 1 unit, not every time the projector can be used because you have to alternate with other classes, not to mention if there is a power failure because at SD N Pasuruhan located under the foot of the mountain, there are often power failures due to landslides hitting the electric tower and tend to use projectors that require a lot of preparation. So they need learning media that can be used at any time that can display interesting pictures and explanations and can hone their knowledge about the appearance of nature. Based on interviews with class V teachers Anggoro Apriliyanto, S.Pd at this school is still very minimal and there is no application of special media development such as *Pop Up Book* previously in science subjects, the material knew the shape of the earth or the appearance of nature. Judging from these problems, there is a need for tool assistance to convey messages in learning in the sense that the importance of learning media as supporting learning messages is very important, according to (Haryadi et al., 2021: 70 ). By using learning media can homogenize the delivery of the material delivered and students do not feel bored because they use media, making the learning process more effective, interesting and can save time.

## METHODS

The research conducted is included in the research *research and development (R&D)*. (*Research & Development*) is a research method starting with research and continuing with development that results in new products being produced through process development by testing the effectiveness of the product (Permana & Sari, 2018: 10). The development model used refers to the ADDIE model (*Analyze, Design, Development, Implementation, Evaluation*) developed by Dick and Carry (1996). The ADDIE model is one of the systematic learning design models (Tegeh et al., 2014: 41). Based on this statement, the ADDIE model research consists of 5 steps, namely:

1. *Analysis (Analyze)* the analysis stage includes several activities as follows: a) conducting analysis that is required of students. b) analyze the characteristics of students about their learning capacity, knowledge, skills, attitudes that have been possessed by students and other related aspects. c) conduct material analysis in accordance with the demands of competence.
2. *Design* The design stage is carried out with the following terms of reference: a) for whom is learning designed? b) What skills do you want to learn? (learners). c) How can the lesson or skill be best learned? (learning strategies). d) How do you determine the level of mastery of the lessons that have been achieved? (assessment and evaluation).
3. *Development (Development)* the third stage is development which in essence is the activity of translating design specifications into physical form, so that this activity produces a prototype of the development product.
4. *Implementation of development results* is applied to learning to determine its effect on the quality of learning including effectiveness, attractiveness, and efficiency of learning.
5. *Evaluation (Evaluation)* evaluation stage which includes formative evaluation and summative evaluation.

The ADDIE model is chosen in the development of learning media *Pop-Up Book Social studies for natural appearance material in grade V elementary school*, because at each stage carried out will experience an evaluation stage (*Analyze* (analyze), *Design* (designing), *Develop* (develop) and *Implement* (application) in its development, it is necessary to evaluate the shortcomings and improve the quality of each stage so that it is in accordance

with the needs needed so as to produce products that are effective and efficient in terms of quality and feasibility when used in learning activities. Sugihartini & Yudiana, ( 2018 : 284) also said that ADDIE is very effective to use, the stages of ADDIE are also very systematic so that products that are ready to use and meet product development testing standards are produced.

## Research Design

Product trial design in development research or Research and Development (R&D) research is very necessary to test the quality and feasibility of the product developed. Trial this product to determine the quality and feasibility of learning media to be used in the process of learning activities. The stages of product trials are carried out as follows.

The design of research trials on the developed products consists of:

1. Media expert validation that aims to determine the quality and feasibility of the media used,
2. Material expert validation that aims to determine the quality and suitability of material contained in the media,
3. Validation of learning experts that aims to determine the quality and feasibility of learning media developed for learning activities,
4. The response of the grade V teacher of SD N 2 Binangun Wonosobo aims to determine the response to the use of *Pop-Up Book media*.
5. The response of grade V students of SD N 2 Binangun Wonosobo aims to determine the response to the use of *Pop-Up Book media*.
6. The Effectiveness Test was conducted on SD N Pasuruhan students using Pretest and Posttest.
7. Interview of the use of *Pop-Up Book media* with a teacher at SD N Pasuruhan Wonosobo.

Product trials must be recognized or validated by experts including material experts, learning experts, media experts. The purpose of this stage is to assess the feasibility of products that have been developed, namely *Pop-Up Book Media* based on local wisdom matri natural appearance grade V elementary school.

After product validation by experts, the next step is to conduct product trials. Product trials are divided into two, namely.

1. Limited trial  
The limited trial was used to measure the feasibility of media products at SD N 2 Binangun with 15 students and 1 class teacher.
2. Effectiveness trials  
This effectiveness test was conducted at SD N Pasuruhan class V with a total of 30 students to measure the effectiveness of media products.

## Participant

The subjects or participation of this study were grade V students of SD N 2 Binangun totaling 15 students, then 30 students from SD N Pasuruhan totaling 30 students. As well as grade V teachers of SD N 2 Binangun and SD N Pasuruhan.

## Materials

Researchers obtain data from user subjects and validation experts as well as with several techniques carried out in the field. The instruments carried out in this study that are carried out for the collection of necessary data are through interview activities and research sheets.

1. Interview  
Interview or interview is a technique or a way of asking a number of questions or statements to individuals or groups through special face-to-face meetings. According to Sugiyono (2019: 210), interviews are used as a technique or data collection tool if the author or researcher wants to conduct a preliminary study to find problems that must be researched, and also if the researcher wants to know things from respondents in more depth and the number of respondents is small / small.
2. Questionnaire  
Questionnaire is a data collection technique that provides several questions to be answered to respondents who have valid aspects or data to be processed in answering a problem (Sugiyono, 2017). The list of questions is made differently and designed according to the scope of respondents in order to produce valid and accountable data, the instrument guidelines used in measurement are linkert scales, the questionnaire instruments used include media expert assessment sheets, material expert assessment sheets, ahi learning assessment sheets,
3. Product trial instruments  
This instrument contains assessments for testing aspects of attractiveness given by students and educators. This instrument was developed to obtain quality from the educator's point of view and to determine the level of student attraction in learning. Among them are class teacher assessment sheets and student response sheets.

## Procedure

1. Analysis stage
  - a. Curriculum analysis  
Curriculum analysis is carried out to determine the applicable curriculum in SD Class V with the aim of adjusting existing material to be applied to Pop-Up Book learning media as a medium or tool to convey the content of the message to be conveyed in the learning material.
  - b. Analysis of student needs  
This analysis was conducted to determine the problem of needs that need to be presented when learning social studies The appearance of nature in Indonesia.
2. Design stage  
At the design stage, the learning program needs to be clearly designed *Pop-Up Book* media can achieve the desired learning objectives. The design of the media to be used adjusts to the needs of the material that has been determined.
  - a. Reference collection  
The collection of references is carried out by studying or knowing the material to be developed into the *Pop-Up Book* , namely the material of natural features in Indonesia. by collecting the images needed to compile the media you want to develop.
  - b. Storyboard creation  
Making storyboards is the initial process of designing *Pop-Up Book* media to show a rough overview or general description of concepts that will become objects that students see on each page. The function of the storyboard itself is to make it easier to design *Pop-Up Book* media on each page.
  - c. Preparation of research instruments  
The preparation of research instruments is a tool used to determine the validity of the learning media developed. The research instrument used was a pre-research interview with a class V teacher of SD N Pasuruhan Wonosobo. As well

as questionnaires used to determine the validity of learning media addressed to media experts, material experts, learning experts, linguists as well as physical education teachers and grade V elementary school students.

### 3. Development stages

The stage of developing *Pop-Up Book media* based on *Local Wisdom* natural appearance material will later be limited to field effectiveness tests, then the media is tested for validity by media experts, material experts, learning experts and feasibility will be obtained based on the responses of teachers and grade V elementary school students. The results of validity by experts will later be used to improve the material and media developed to have quality and feasibility in the learning process. If deficiencies are found, then the next step is to modify to correct the defects and weaknesses of the learning media found by experts through the validation process.

Field trials were carried out by testing the product to small groups previously at SD N 2 Binangun totaling 15 students and proved feasible then could be used into the main group or at SD N Pasruhan numbering 30 students for effectiveness tests. This activity is carried out during the learning process in class. Researchers will be directly involved in these activities to provide guidance on how to use *Pop Up* books to get the best results. Researchers do this to determine the effectiveness and get a response from the results of using *Pop-Up Book media* based on *Local Wisdom* material on natural features in Indonesia.

### 4. Implementation stage

At this stage, the implementation in the development of *Local Wisdom*-based *Pop-Up Book media* is carried out by implementing the product that has been developed in a real learning process in the classroom. *Pop-Up Book* based on *Local Wisdom* will be applied by teachers to grade VI elementary school students directly to find out the effectiveness in actual use in the field. This implementation stage is not carried out by researchers because the testing stage in class with students has been carried out by researchers at the *development* stage or development when testing effectiveness, so the implementation stage here is carried out when the media is really perfect and can be used in learning by teachers directly in class.

### 5. Evaluation phase

The evaluation is carried out at every stage of ADDIE model development starting from the analysis stage, design stage, development stage, and implementation stage. Evaluation is carried out at each stage so that at each stage of development it has good quality, when there is a shortage or error immediately a solution is given to improve it. This periodic evaluation will create the final result of *the Pop-Up Book Media* product based on *Local Wisdom* material on the appearance of nature in Indonesia.

## Data Analysis

### 1. Qualitative Data Analysis

Qualitative data analysis in this study was obtained from the results of input, advice and assessment from material experts, learning experts, and media experts. As well as the results of interviews with class V teachers of SD N Pasuruhan using Miles and Hubberman model data analysis techniques.

- a. Analysis of media data, input and suggestions given by media experts, including the type of font used must be easy to read and in accordance with student characters, uppercase writing and periods must be corrected and re-examined.

Consistency in using realistic illustration images, if one is realistic then realistic all there is no cartoon, the effect of writing shadows that must be reduced so as not to break the focus of students, and add to the list of quotes in each explanation of the material used.

- b. Analysis of material expert data, input and suggestions given by material experts, namely in the evaluation question section must be more related to the material of natural appearance so that students think more critically again in thinking.
- c. Analysis of learning expert data, input and suggestions given, namely consistency in writing "students" and "students" choosing only one, judging the syntax stages in the sequence of learning activities, inclusion of grids for pretest and postes questions, inclusion of Pancasila student profile achievements in the learning activities section from beginning to end.
- d. Interviews with grade V elementary school teachers, based on the results of interviews that have been conducted after using *Pop-Up Book media*, grade V teachers give positive comments, meaning that the media developed is very good and in accordance with the independent curriculum used. However, there must be another improvement on the cover so that the gluing is tidied up again and the first page section has a section that is removed so that it is immediately repaired again in the advice given by the teacher of grade V SD N Pasuruhan.

**RESULTS**

Assessment results on assessment sheets of media experts, material experts, learning experts, teacher repons, and student responses. The results of quantitative data obtained from experts, teachers, and students after using *Pop-Up Book media based on Local Wisdom* material on the appearance of nature for grade V elementary school are as follows.

- a. Analysis of Expert Validation Test Assessment Sheets

Table 1. Expert Validation Test Assessment Results Data

No	Valuation	Percentage Value	Category
1	Media Expert	96%	Highly qualified
2	Material Expert	87,2%	Highly qualified
3	Learning Experts	82%	Highly qualified
Sum		265,2%	
Average rating		88,4%	
Category		Highly qualified	

Based on Table 15, the percentage of assessments conducted by media experts, material experts, and learning experts respectively received scores of 96%, 87.2% and 82%. The percentage results are added up and then averaged to get an average score of 88.4% and fall into the very quality category. The conclusion that can be drawn is that the *Pop-Up Book Media based on Local Wisdom*, the material of natural appearance for grade V elementary school is very high-quality.

- b. Teacher Response Sheet Analysis

Table 2. Data on the Response Results of Grade VI Elementary School Teachers

No	Valuation	Percentage Value	Category
1	Class V Teacher	100%	Highly Quality



Based on Table 16, the percentage of assessment conducted by grade V teachers of SD N 2 Binangun on *Local Wisdom-based Pop-Up Book Media*, natural appearance material after trials in the learning process is 100% with a very quality category. The conclusion that can be drawn is that the Pop-Up Book Media based on Local wisdom material on natural appearance for grade V elementary school is of high quality.

c. Student Response Sheet Analysis

Table 3. Response Data of Grade V Elementary School Students

No	Valuation	Percentage Value	Category
1	Class V students	100%	Highly Quality

The percentage of assessment conducted by grade V students of SD N 2 Binangun on *Pop-Up Book media based on Local Wisdom* natural appearance material after being tested in the learning process is 100% with a very high quality category. The conclusion obtained is that *Pop-Up Book media based on Local Wisdom* natural appearance material for grade V elementary school is very feasible to use.

Table 4. Average Data of Expert, Teacher and student Assessment

No	Valuation	Percentage Value	Category
1	Media Expert	88,4%	Highly qualified
2	Teacher	100%	Highly qualified
3	Student	100%	Highly qualified
Sum		288,4%	
Average rating		96,13%	
Category		Highly qualified	

Based on Table 18 shows that the average assessment of media experts, material experts, learning experts, linguists, teachers and students obtained a score of 96.13% in the highly qualified category. The conclusion obtained is that *the Pop-Up Book media based on Local Wisdom*, the material of natural appearance for grade V elementary school is very high-quality.

d. Analysis of Effectiveness Test Data

The effectiveness test was carried out to measure the effectiveness of *Pop-Up Book media based on Local Wisdom* natural appearance material for grade V elementary school which was applied using a one-group pretest-posttest. The effectiveness test was carried out in class V of SD N Pasuruhan with a total of 30 students. The test used to measure the effectiveness of this study uses several stages, namely the normality test, homogeneity test, and paired sample t-test as follows.

1) Normality test

The normality test is a test used to determine a data including the normal distribution or not. The normality test used in this assessment uses Kolmogorov Smirnov's formula. The results obtained from testing the data are declared normally distributed if the significance value is  $>0.05$ , while if  $<0.05$  the data is declared not normally distributed. The results of the normality test in this study can be seen in Table 24 below.

Based on	Class	Kolmogorov-Smirnova		
		Statistics	Df	Sig.
	Pre-Test Experiment (PBL)	.151	30	.077
	Post-Test Experiment (PBL)	.146	30	.101

description of Table 19, the normality test results show that the significance values of the experimental class pretest and posttest are 0.077 and 0.101 so that  $>0.05$ . The conclusion is that the pretest and posttest data of the *Pop-Up Book Media* are normally distributed so that they can be continued on the hypothesis test using the *paired sample t-test*.

2) Homogeneity test

The homogeneity test is a test carried out to provide evidence or confidence that the group of data being studied when the analysis process is carried out feels from a population that is not much different in terms of diversity. If the significance  $< 0.05$  then the data studied is not homogeneous, if the significance value  $> 0.05$  then the data studied are homogeneous. The results of the homogeneity test in this study are as follows.

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Pretest posttest results	Based on Mean	2.565	1	43	.117
	Based on Median	2.012	1	43	.163
	Based on Median and with adjusted df	2.012	1	40.218	.164
	Based on trimmed mean	2.522	1	43	.120

Based on Table 20, the homogeneity test results show a pretest and posttest significance value of 0.117 so that it is greater than 0.05. The conclusion that can be drawn is that the pretest and posttest data of *Pop-Up Book media* are homogeneously distributed. Based on the results of the normality test and homogeneity test that have been carried out, it is concluded that the data from the pretest and posttest results of class VI science literacy are normally distributed and homogeneous so that processing can be carried out with parametric statistics.

3) Paired Test T-Test

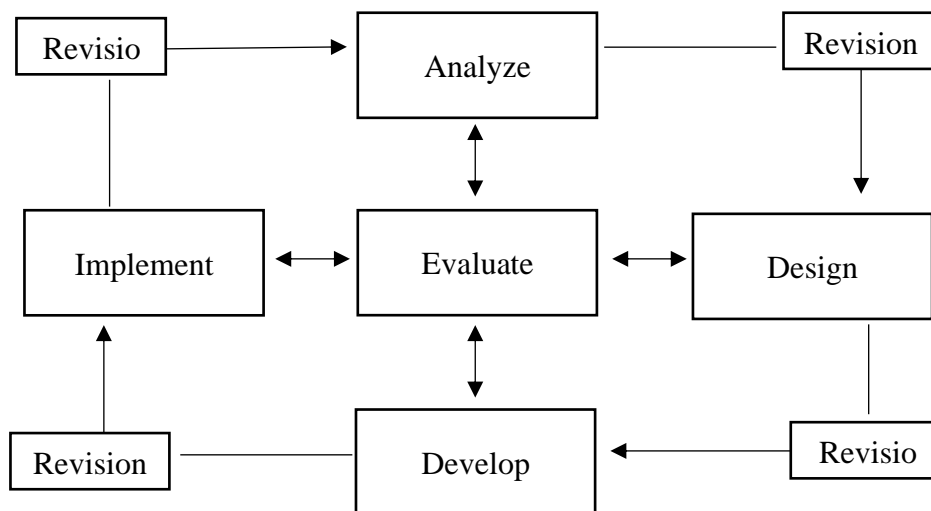
The *paired sample t-test* is performed to determine how significant the difference in conditions before and has been carried out a behavior. The difference test in this study used a *paired sample t-test* with a significance level of 0.05. The *paired sample t-test* results in this study are as follows.

Paired Samples Test									
		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair	Pre-Experiment - PostExperiment	-45.267	9.490	1.733	-48.810	-41.723	-26.125	29	.000

Based on Table 21 paired sample t-test results obtained a significance value of  $<0.000$  smaller than the significance of 0.05, so that  $H_0$  was rejected and  $H_a$  was accepted. The conclusion from this paired sample t-test is that there are differences before and after the use of *Pop-Up Book Media* based on *Local wisdom* material of natural appearance class V elementary school. The final conclusion obtained is that *Pop-Up Book Media* based on *Local wisdom* material on natural features of grade V elementary school is effective to be used for grade V elementary school.

## DISCUSSION

Media development *Pop-Up Book Based Local Wisdom Natural* appearance material for grade V elementary school has been carried out using the ADDIE development model with 5 stages, namely *Analysis/analysis Design/design Development/development, implementation, and evaluation/Evaluation* (Tegeh et al., 2014: 41). Relating to the stages of the ADDIE model according to Hidayat et al., (2021 : 30) can be described as follows.



So at each step in the research using the ADDIE model in each section, an evaluation is carried out to find out the shortcomings in the media development carried out. A series of stages carried out in the process of developing interactive *pop-up book media for* healthy living culture for grade V elementary school students were carried out to obtain data on the quality of the assessment of media experts, material experts, and learning experts as well as the response of grade IV elementary school students and class teachers. Learning media is a device used as a distribution of the process of delivering material in learning (Nurfadhillah, 2021).

*Media Pop-Up Book* What was developed is a graphic print visual media in which there are text materials and images arranged interactively, namely with students having to drag, open, shift, and flip the operation menu in the book. According to Indriyani (2019 : 19) Media is very useful and useful in the process of education because with learning media the learning process is more directed, organized, organized and has guidelines according to educational objectives. *Media Pop-Up Book Based Local Wisdom* The natural appearance material for grade V elementary school that was developed has the advantages of a) providing an interesting story starting from the appearance of yaiyu dimensions in the picture and when the book page is opened a certain part will be able to shift. b) Provide a surprise that can invite amazement when the book page pops up which later the reader will wait for the surprise on the next page. c) The impression conveyed in a story is getting stronger so that students have new experiences and are enthusiastic in learning activities. According to Sinta & Sofyan, (2021 : 253) *excess Pop-Up Book* Able to attract students' attention in following learning because it has an embossed and unique shape on each page and interesting colors so that it can visualize abstract facts. This is supported by research Anies & Neni, (2018 : 1546) In his research which explained that learning using media *pop up book* It has a great influence on effective use in learning compared to previous learning.

*Media Pop-Up Book* This is based on local wisdom, according to Shufa et al., (2018: 50) Local wisdom is everything that is the potential of an area and the result of human thought and human work that contains wise and wise values and is passed down from generation to generation so that it becomes the hallmark of the area. According to Utari

(Shufa et al., 2018: 49) Local wisdom is "the tendency towards local wealth / an area in the form of knowledge, beliefs, norms, customs, culture, insights and so on which are inherited and maintained as an identity and guide in teaching us to act appropriately in life". (Njatrijani, 2018) Local wisdom is formed as a cultural advantage of local people and geographically in a broad sense, and emphasizes more on place and locality. Based on the previous statement, it can be concluded that local wisdom is a noble value that exists in an area related to the location of locality, culture, norms and customs that characterize an area

The function of local wisdom According to Shufa et al., (2018: 50) The function of local wisdom is to increase the love of local wisdom in the environment and as an effort to maintain the existence of local wisdom in the midst of the rapid flow of globalization, as a provision later in order to provide knowledge of local wisdom for generations. Thus, it can be concluded that the function of the existence based on local wisdom values will help students understand each concept of the material so that the delivery of knowledge obtained by students is not limited to knowledge but can also be implemented by students in the form of practice outside the school, namely the student environment itself.

The techniques of analyzing data carried out in this research and development are qualitative data and quantitative data.

#### 1. Qualitative Data

Qualitative data in this study was obtained from the results of input, advice and assessment from material experts, learning experts, and media experts. As well as the results of interviews with class V teachers of SD N Pasuruhan using the Miles and Hubberman model data analysis techniques, the stages of analysis of the Miles and Hubberman models according to Sugiyono, (2022 : 134-131).

##### a. Data Reduction

Reducing means summarizing, selecting and sorting out the essentials, focusing on the essentials, looking for themes and patterns and discarding the unnecessary. Thus the reduced data provides a clear picture, and makes it easier for researchers to collect further data.

##### b. Data Presentation

In qualitative research the presentation of data can be done in the form of brief descriptions, charts, relationships between categories, flowcharts and the like. By displaying it will be easy to understand what happened, plan the next work based on what has been understood.

##### c. Verification or Conclusion

In this section, researchers draw conclusions from the data that have been obtained. Drawing conclusions should be based on data obtained during research activities. This activity aims to find the meaning of the data collected so that it can answer the formulation of the problem formulated from the beginning, Based on the assessment criteria described above, it will be known the feasibility of *local wisdom-based Pop-Up Book Media* which is said to be feasible if it obtains a value on the minimum criteria of good.

#### 2. Quantitative data

Quantitative data is used for *Pop-Up Book* media eligibility. Analysis of data obtained from expert experts, teacher assessment using the Likert scale and student responses using the Guttman scale. Feasibility analysis of *Pop-Up Book* media based on *local wisdom* of natural appearance material in Indonesia grade V elementary school obtained from expert lecturers and educators

- a. Systematic assessment of assessment scores with the *Likert* scale with the following guidelines:

Rating Scale	Assessment Score
Totally agree	5
Agree	4
Disagree less	3
Disagree	2
Strongly disagree	1

Source : Adapted from Sugiyono, (2019 : 165)

- b. While the student response questionnaire was made using the *Guttman* scale. The *Guttman* scale is a type scale that is clear or firm and consistent with answer choices including sure-unsure, true-false, yes-no, positive-negative, never yet, agree-disagree, and so on. Data obtained from the *Guttman* scale of two intervals namely "yes" to say yes / agree and "no" to say no / disagree. The *Guttman* scale guidelines used are as follows:

No	Answer scale	Score
1.	Yes (agree)	1
2.	No (disagree)	0

Calculates the scoring score of each aspect of the assessment using a formula.

$$N = \frac{\sum x}{\sum \text{maks}} \times 100$$

Information

N : Value

$\sum x$  : Number of scores obtained

$\sum \text{max}$  : Maximum number of scores

Calculating the score from the response of grade V elementary school students obtained using the *Guttman* scale using the following formula:

$$p = \frac{f}{n} \times 100$$

Information:

p : The value of the sum of the scores obtained

f : Number of scores obtained

n : Maximum number of scores

- c. Data on the percentage assessment of media experts, material experts, learning experts, class V teacher responses, and grade V elementary school student responses in the form of numbers will be converted in qualitative form. This stage is carried out by categorizing the percentage results obtained using certain distance intervals in table 9 of quality assessment. The categories of quality assessment in quantitative form are as follows.

Criterion	Percentage interval
Highly Quality	81% - 100%
Quality	61% - 80%
Enough Quality	41% - 60%
Lack of Quality	21% - 40%
Very Lacking in Quality	0% - 20%

Source: (Pradilasari et al., 2019: 11)

### 3. Test Effectiveness

Using *One-Group Pretest-Posttest Design*. In this design before being given treatment, students are given pretest questions first. The results of the treatment can be known more accurately by comparing the condition before and after treatment. This design can be described as follows.

$$O_1 \quad X \quad O_2$$

Information:

$O_1$  = Pretest value (before treatment)

$O_2$  = Posttest value (after treatment)

In calculating the effectiveness of *Pop-Up Books* based on Local Wisdom, natural appearance material for grade V elementary school students uses the *Statistical Product and Service Solutions* (SPSS) program. The effectiveness of *Pop-Up Book Media* based on *Local Wisdom* natural appearance material for grade V elementary school students will be tested using homogeneity testing, normality test then continued with T test based on students' pretest and posttest scores in using the *Pop-Up Book* media .

## CONCLUSION

Based on the results of research and development of *Pop-Up Book media* on natural appearance material for grade V elementary school students that has been carried out, it can be concluded that the development of *Pop-Up Book* media based on *Local Wisdom* of natural appearance material for class V was developed using the ADDIE development model, namely analysis / analysis, design / design, implementation / implementation, and evaluation / evaluation. *Pop-Up Book media* based on *Local Wisdom* natural appearance material after validation received a percentage of quality assessment from media experts 96%, metari experts 87.2%, learning experts, amounting to 100% of teacher responses and from the responses of 30 students obtained a percentage of 100%. The average result of obtaining all expert assessments of teacher and student responses of 96.13% became the final score used. Based on these results, it can be concluded that the *Pop-Up Book Media* based on *Local Wisdom*, natural appearance material for class V is of high quality. The effectiveness of *Pop-Up Book Media* based on *Local Wisdom* natural appearance material for class V is carried out using several stages, namely normality test, homogeneity test, and paired sample t-test. The normality test results showed the significance values of the pretest and posttest control class 0.200 and 0.200 experimental class respectively 0.077 and 0.101 so that it was more than 0.05. From the results of the normality test, it is known that the pretest and posttest data are normally distributed. Furthermore, the homogeneity test data showed a significance value of 0.117 so that it was greater than 0.05. The homogeneity test shows that the pretest and posttest data are homogeneously distributed. The paired sample t-test results for class V 30 students showed a significance value of > 0.000 or less than 0.05 so that it can be concluded that  $H_0$  was rejected and  $H_a$  was accepted (there are differences before and after the use of *Pop-Up Book* media based on *Local Wisdom* natural appearance material for class V). From the overall results of the test, it can be concluded that *the Pop-*

*Up Book Media* based on *Local Wisdom* natural appearance material for class V is effective for use in class V elementary school.

Research and development of *Media Pop-Up Book* media based on *Local Wisdom* natural appearance material for grade V elementary schools that were developed has several research limitations including *Pop-Up Books* limited to grade V elementary school students, *pop-Up Books* limited to "acquaintance with our earth" material, media development is only limited to the effectiveness test stage and not until mass production.

Suggestions for Research and development of *Media Pop-Up Book media* based on *Local Wisdom* natural appearance material for grade V elementary schools developed among others.

1. For Teachers

*Pop-Up Book media* based on *Local Wisdom* natural appearance material for class V is effective for use in grade V elementary school. Can be a medium that supports the learning process. The developed media can also be used by teachers as an alternative way to teach material on the appearance of nature to students in an interactive and interesting way.

2. For Students

*Pop-Up Book media* based on *Local Wisdom* nature appearance material for grade V elementary school can be a tool for students in providing an overview of nature in the existing local version and have enthusiasm in learning nature appearance material in learning.

3. For the Next Researcher

Further research is expected to be able to carry out product development to the implementation stage so that this development research can be more perfect. Further researchers are expected to be able to innovate related to learning media that are better in terms of media design and existing materials in the media. In addition, further researchers are expected to create various types of learning media similar to *Pop-Up Books* but can be collaborated with technology today such as QR scans or three-dimensional image scans.

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