

Contextual-based science Pop Up Book: Learning media to improve creative thinking skills of junior high school students

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Abstract: Students' creative thinking skills in Indonesia are still relatively low. This is because students have difficulty in understanding the material that has been learned, are limited and inhibited in conveying ideas, and the learning process is less efficient because it only uses learning media that is less interesting and uses lecture methods that are easily boring. This study aims to describe the validity, practicality, and effectiveness of contextual-based science Pop Up Book learning media to improve the creative thinking skills of junior high school students. Creative thinking skills measured include fluency, flexibility, originality, elaboration. This research uses a development research design with the ADDIE model, namely analysis, design, development, implementation, and evaluation. Data collection techniques and instruments used include validation sheets, learning implementation observation sheets, test questions (pre-test and post-test), and student response sheets to measure students' creative thinking skills. The results of data analysis showed that the contextual-based science Pop Up Book media obtained a validity score of 88.28% with very valid criteria. The practicality of the contextual-based science Pop Up Book media through the learning implementation observation sheet obtained a score of 89.14% with very practical criteria. The use of contextual-based science Pop Up Book media is also proven effective through the results of the *N*-gain score of 0.56 with moderate criteria. As well as student responses to the contextual-based Science Pop Up Book were very good with a score of 90.05%. The contextual-based science Pop Up Book media developed as a whole can be concluded to be valid, practical, and effective for improving the creative thinking skills of junior high school students.

Keywords: science Pop Up Book learning media; contextual; creative thinking skills

1. Introduction

a. Science learning and creative thinking skills (definition and importance)

Science learning explains the mastery of all things related to nature such as principles, facts, concepts, systematic theories to procedures accompanied by scientific processes in the form of experiments and observations so as to bring up and develop skills in students. Science learning is defined as a process of exploration and creative thinking to understand the various causes and effects of phenomena that occur in nature [1]. The current science learning process also focuses students on developing creative, critical, and collaborative thinking skills. Science learning activities that relate material to everyday life can optimize students in stimulating creative thinking skills. Creative thinking skills are the ability to think complexly to obtain new and original ideas. Creative thinking consists of several aspects, namely fluency, flexibility, originality, and elaboration.

b. The relationship between the independent curriculum and creative thinking skills

The independent curriculum focuses on the Pancasila learner profile. One of the

elements of the Pancasila learner profile is creative thinking. Independent learning is interconnected with learning carried out in the 21st century. Science learning that uses creative thinking skills or applies 21st century skills will produce something new in the form of ideas or real work. The development of a context-based Science Pop Up Book is related to the Merdeka Curriculum because it can stimulate students' creative thinking skills. Students who are trained in creative thinking skills will feel free and unencumbered in the learning environment, so students will have fun learning to find information, explore their potential and enthusiasm, and be expressive in completing tasks from the curriculum load [2].

c. Data on low creative thinking skills

Students in Indonesia have relatively poor creative thinking skills [3]. The fact is that in schools sometimes students' creative thinking skills are not well developed. The results of several studies that include the creativity index, innovation index, and achievement in science show that Indonesia has challenges in improving creative thinking skills. The Global Creativity Index in 2022 suggested that Indonesia was ranked 115 out of 139 countries [4]. In 2023, the Global Innovation Index ranked Indonesia 61st with a score of 30.3 out of 152 countries. Indonesia rose 14 ranks compared to 2022, when it was ranked 75th with a score of 27.9. With this data, it appears that creative thinking skills in Indonesia are still in the low category [3].

d. Low creative thinking skills in science learning

Creative thinking skills play a role in developing students, especially in science learning. Science learning has a diverse level of difficulty, there is science material that is easy and difficult to visualize. Science material that tends to be difficult to visualize can be overcome by using relevant media [5]. Students' creative thinking in science learning is sometimes still difficult to develop because students have difficulty in understanding the material that has been learned, are limited, and are hampered in conveying or improving ideas, and the learning process is less efficient because using less attractive media and boring lecture methods can make students passive (silent) and rarely ask questions related to the learning that takes place [6].

e. Research gap/previous research

Previous research was conducted by Oktaviana et al., [7] in their research. The results of the development research are valid with 84.28%, very practical with 89.12%, and effective with 81.58%. The research material used is the Pythagorean theorem with the 4-D development model including define, design, development, and dissemination. The equation of developing contextual-based Pop Up Book learning media (Contextual Teaching and Learning) makes this research a reference for researchers, but there are differences in this study related to the material, namely the "Blood Circulation System" using the ADDIE development model, and the dependent variable is creative thinking skills.

f. Problem solution (contextual-based science Pop Up Book)

The solution to improve creative thinking skills in science learning is to develop a context-based science Pop Up Book that describes the material of the human circulatory system in two or three dimensions using paper to display a form of moving images and arise interactions in the form of folds, rolls, shapes, and turns [8]. The purpose of this study is to describe the validity, practicality, and effectiveness of contextual-based science Pop Up Book learning media to improve the creative

thinking skills of junior high school students. The utilization of Pop Up Book is expected to be able to motivate, stimulate students' thoughts and interests in order to create effective and efficient learning.

2. Materials and methods

- **Materials**

Contextual learning is learning that emphasizes the full process of student involvement to be able to find material that is learned and relate it to real-life situations so as to encourage students to be able to apply it in their lives [9]. Contextual Teaching and Learning (CTL) is defined as a way to introduce content using a variety of active learning techniques designed to help students connect what they already know to what they are expected to learn, and to construct new knowledge from the analysis and synthesis of this learning process [10].

Science learning is done contextually so students can actively participate. Contextual learning by utilizing nature and based on the surrounding environment using outdoor learning. Context-based learning is learning that connects subject matter with the context of students' daily lives. Context-based learning is expected to be more meaningful because the learning process takes place by connecting subject matter to the context of students' daily lives, students experience themselves, students are active in learning through group learning to solve problems, make observations, practice finding, and draw conclusions. Students know the benefits of learning, learning goals, how to achieve them, knowing that what they are learning is useful in their future lives, and having knowledge or skills that can be flexibly applied from one problem or context to another [10].

Creative thinking skills are the ability to analyze new information and combine it as a unique idea to solve a problem. Students who study science today must have 21st century skills, these skills emphasize the ability to solve problems that lead to student skills in creative thinking. Pop Up Book media helps students who have difficulty in mastering the material because it visualizes complex concepts or events that are impossible to observe in the real world. Pop Up Book serves to create an innovative and creative learning environment. Pop Up Book have a two- or three-dimensional appearance like a book and use paper that, when opened will display a shape and moving images and provide interaction in the form of folds, rolls, shapes, and turns [8].

- **Methods**

This study uses a research design with the ADDIE development model which includes analysis, design, development, implement, and evaluate. The research was conducted at SMP Negeri 7 Jember in class VIII H with 35 students from September to October in the 2024/2025 school year. The instruments used include primary or main research data using validation sheets, practicality sheets, tests (pre-test and post-test), student responses, and secondary or supporting research data using observation, interviews, and documentation. The data obtained from the research were processed using the following methods.

Validity analysis:

Validation data is obtained from the assessment sheet filled in by the validator.

The formula for calculating validity is:

$$P = \frac{\Sigma x}{\Sigma xi} \times 100\%,$$

where P is the percentage of validity, Σx is the total score achieved, and Σxi is the total maximum score. Then the validity results can be concluded based on the validity criteria listed in **Table 1**.

Table 1. Validity criteria.

Percentage (%)	Category
$85 < P \leq 100$	Very valid
$70 < P \leq 85$	Valid
$40 < P \leq 70$	Less valid
$25 < P \leq 40$	Invalid

Practicality analysis:

Practicality data is obtained from the learning implementation sheet filled in by the observer. The formula for calculating practicality is:

$$V = \frac{\Sigma TSe}{\Sigma Tsh} \times 100\%,$$

where V is the percentage of practicality, ΣTSe is the total score achieved, and ΣTsh is the total maximum score. Then the practicality results can be concluded based on the practicality criteria listed in **Table 2**.

Table 2. Practicality criteria.

Percentage (%)	Category
$85 < V \leq 100$	Very practical
$70 < V \leq 85$	Practical
$40 < V \leq 70$	Less practical
$25 < V \leq 40$	Not practical

Effectiveness analysis:

- Student ability analysis

Analysis of students' abilities obtained from tests (pre-test and post-test) is calculated by the N -gain formula first developed by Hake [11] as follows.

$$\langle g \rangle = \frac{S_{\text{post}} - S_{\text{pre}}}{S_{\text{max}} - S_{\text{pre}}} \times 100\%,$$

where $\langle g \rangle$ is the average gain score, S_{post} is the final score of the questionnaire, S_{pre} is the initial score of the questionnaire, S_{max} is the maximum score. Then the results of the N -gain test can be concluded based on the average N -gain criteria listed in **Table 3**.

Table 3. Average criteria.

N-gain score	Category
$\langle g \rangle \geq 0.7$	High
$0.3 \leq \langle g \rangle < 0.7$	Medium
$\langle g \rangle < 0.3$	Low

- Student response

The results of the student questionnaire were accumulated and the percentage of responses from students was obtained which can be calculated using the following formula.

$$RS = \frac{A}{B} \times 100\%,$$

where *RS* is the percentage of student response, *A* is the total score obtained, *B* is the maximum score. Then it can be concluded that the results of the student response questionnaire are based on the student response questionnaire score criteria listed in **Table 4**.

Table 4. Student response questionnaire score criteria.

Percentage (%)	Category
$85 < RS \leq 100$	Very good
$66 < RS \leq 85$	Good
$46 < RS \leq 65$	Less good
$25 < RS \leq 46$	Not good

3. Results and discussion

Development research uses the ADDIE stage, namely analyze, design, develop, implement, and evaluate. The analyze stage is the initial step in identifying the information needed for the development of contextual-based science Pop Up Book learning media. Researchers conducted initial identification by observing and interviewing science teachers at SMPN 7 Jember. Researchers analyzed the curriculum used in the school, student analysis aims to make the Pop Up Book developed able to adjust to the characteristics of students, and the analysis of school needs, namely teaching materials in learning.

The design stage is the stage of making the design of the science Pop Up Book material “Blood Circulatory System” by paying attention to learning outcomes and learning objectives, designing teaching modules and compiling tests in the form of pre- and post-tests adjusted based on creative thinking indicators namely fluency, flexibility, elaboration, originality. The design of context-based science Pop Up Book learning media is designed with the Canva application. The media is designed with an attractive appearance whose contents consist of a cover, introductory page, table of contents, instructions for use, learning outcomes, learning objectives, circulatory system materials and questions related to creative thinking skills, questions related to everyday life (contextual), bibliography, and author profile. Pop Up Book science is also designed with a contextual approach so that the material “Circulatory System”

becomes more interesting, easy to understand, and relevant to everyday life.

Products that have been designed then proceed to the development stage, researchers make learning tools and media in printed form and then realize the development product to be expertly validated by three validators to determine the feasibility of the product before being tested. The products applied to students amounted to three Pop Up Book sciences. Products that are declared valid are then carried out at the implementation stage, namely applying learning tools and media to students at school (field test) to determine the practicality (applicability of learning) and effectiveness of the product in the form of test question results (pre-test and post-test), as well as student response questionnaires after using Pop Up Book. The last stage is evaluated, looking back at the impact of learning by thinking creatively, measuring the achievement in product development, measuring what the target has been able to achieve.

- Validity of context-based science Pop Up Book learning media

The third stage in ADDIE is develop, the making of learning tools and media in printed form, then validation is carried out to three validators. The validation test was carried out in order to determine the feasibility of learning devices and media before being tested. There are three validators assigned for validation, namely two science education lecturers and one science teacher. The following media validation results by validators are described in **Table 5**.

Table 5. Results of validation of contextual-based science Pop Up Book learning media.

No.	Assessment aspect	Percentage (%)	Category
1.	Format	88	Very valid
2.	Language	86.67	Very valid
3.	Content	87.78	Very valid
4.	Graphics	90.67	Very valid
Average value percentage		88.28	Very valid

The average percentage of the validity of the contextual-based science Pop Up Book in **Table 5**. obtained at 88.28% is categorized as very valid. If matched with the validity level table including a very high category, it is concluded that the Pop Up Book media design is feasible to use as learning media [12]. The product is declared very valid because it has met the assessment criteria from the aspects of format, language, content, and graphics with each percentage as follows. The format aspect gets a percentage of 88% categorized as very valid. The format aspect of learning media is developed in accordance with the Merdeka Curriculum by meeting the criteria that are attractive, fun, easy, and supportive of the learning process [13]. The language aspect has a percentage of 86.67% categorized as very valid. The linguistic aspect consists of conformity to Indonesian language rules, effective and appropriate use of language and sentence structure, and clear delivery of information so that students can understand [14]. The content aspect in the product assessment criteria received a percentage of 87.78%, including a very valid category. The content aspect includes the suitability of the material with the objectives, the alignment of the content

with the learning indicators, and the accuracy or correctness of the concepts [15]. The graphic aspect received a percentage of 90.67%, categorized as very valid. The graphic aspect is related to the appearance of the cover, layout, images displayed, colors used, text, size and typeface [16].

Validators also provide suggestions or input on the developed product to maximize the product, even though the developed product has been said to be very valid. The suggestion is to add pictures or examples of healthy lifestyles to keep the circulatory system functioning normally in the contextual-based science Pop Up Book.

The second validation of learning devices in the form of teaching modules was tested for feasibility by several validators. The following **Table 6.** contains data on the validity analysis of teaching modules that have been.

Table 6. Teaching module validation results.

No.	Key components	Percentage (%)	Category
1.	General information	89.63	Very valid
2.	Core components	88.33	Very valid
Average value percentage		88.98	Very valid

Based on **Table 6.** it is known that the average percentage of the validity of the teaching module is 88.98%, categorized as very valid. The teaching module has several main components, namely as follows. General information gets a percentage of 89.63% categorized as very valid. General information contains module identity, initial competence, Pancasila learner profile, infrastructure or learning media, target students, and learning methods. Meanwhile, the core component gets a percentage of 88.33% including the very valid category. The core component contains learning outcomes, learning objectives, meaningful understanding, triggering questions, teaching materials, learning activities. The appendix consists of teacher and student reflections, reading materials for students and teachers, bibliography. Erlangga [17] states that the product can be declared suitable for use if it meets the validity criteria in each aspect or main component assessed based on the overall assessment results of all validators. The results obtained show that the teaching module used during learning with the help of the context-based science Pop Up Book is appropriate, ready, and feasible to use in the learning process.

Table 7. Results of validation of pre-test and post-test questions.

Question item	Average score 3 validators	Validity (%)	Category
Pre-test			
Fluency	4.167	83.33	Valid
Flexibility	4.167	83.33	Valid
Elaboration	4.333	86.67	Very valid
Originality	4.5	90	Very valid
Post-test			
Fluency	4.333	86.67	Very valid
Flexibility	4.333	86.67	Very valid
Elaboration	4.667	93.33	Very valid
Originality	4.167	83.33	Valid

The third validation of the pre-test and post-test questions with creative thinking indicators was tested by several validators. The following data analysis results can be seen in **Tables 7** and **8**.

Table 8. Average validity scores of pre-test and post-test questions.

Question item	Average score 3 validators	Validity (%)	Category
Pre-test	4.292	85.83	Very Valid
Post-test	4.375	87.5	Very Valid
Average	4.3335	86.665	Very Valid

The results of validation of pre-test and post-test items of creative thinking skills in **Table 7**. show that of the four pre-test questions and four post-test questions, each questions are categorized as valid and very valid. The results of data analysis in **Table 8**. show that the validity of the pre-test question obtained a percentage of 85.83% categorized as very valid, while the post-test question received a percentage of 87.5% categorized as very valid. Validation of the pre-test and post-test has two assessments, namely content and grammar. Content validation reviews the suitability of questions based on the suitability of the material with indicators and learning objectives [12]. Grammar validation is reviewed from the use of correct, clear, and easy-to-understand Indonesian spelling [18].

The following **Figure 1** displays the context-based science Pop Up Book learning media in printed form.

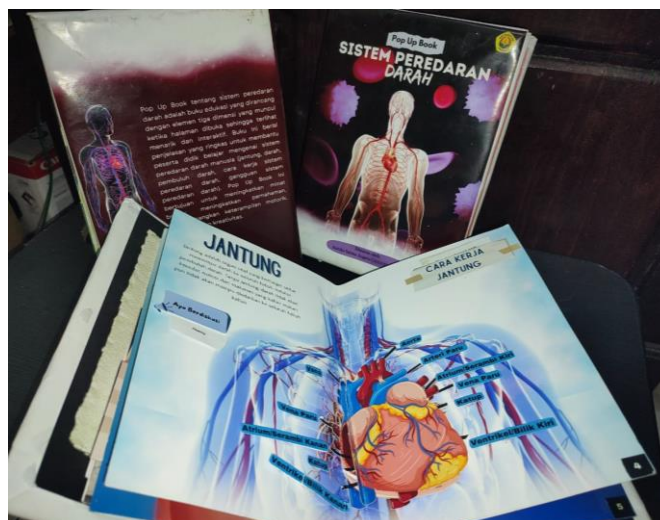


Figure 1. Display of learning media Pop Up Book.

- Practicality of context-based science Pop Up Book learning media

The practicality stage is one of the aspects tested through the implementation result data. This stage is the stage of testing the product in learning after it is said to be valid. The products applied to students amounted to three Pop Up Book sciences. The following are the stages of implementing contextual-based science Pop Up Book learning media at school in **Figure 2**.



Figure 2. The application of context-based science Pop Up Book in science learning.

This practicality is seen from the extent to which learning media can be implemented properly in the context of real learning, both by teachers and students. The following is **Table 9** regarding the results of the implementation of contextual-based science Pop Up Book learning media.

Table 9. The results of the implementation of contextual-based science Pop Up Book media.

Core activities	Interval score			Percentage (%)	Category
	O1	O2	O3		
Using Pop Up Book appropriately	100	83.33	91.67	91.67	Very practical
Understanding the material in the Pop Up Book	91.67	100	100	97.22	Very practical
Conduct a discussion	87.5	81.25	87.5	85.42	Very practical
Doing pop up making activity	100	100	100	100	Very practical
Answering questions in the pop up	83.33	75	91.67	83.33	Practical
Making a presentation	75	100	91.67	88.89	Very practical
Making conclusions	83.33	83.33	83.33	83.33	Practical
Relate the material to everyday life	87.5	75	87.5	83.33	Practical
Overall average	88.54	87.24	91.67	89.14	Very practical

The analyzed calculation data proves that the implementation of contextual-based science Pop Up Book learning media for 5 meetings gets an average percentage of 89.14% categorized as very practical. Erlangga [17] states that students and teachers will find it easier to transfer knowledge (knowledge) if the learning process is carried out effectively, and the results will be useful.

- The effectiveness of contextual-based science Pop Up Book learning media

The stage of measuring evaluates the effectiveness of contextual-based science Pop Up Book learning media on the material “Blood Circulatory System”. The results of effectiveness are obtained from data on the results of pre-test and post-test questions, as well as student response questionnaires filled out by 35 students after using the developed product. Test the effectiveness of the product through giving tests, namely pre- and post-tests with questions that have been adjusted to the indicators of creative thinking, then analyzed using the *N*-gain test. The method for measuring the effectiveness of learning to be able to show an increase in ability before and after the

use of learning media is called the *N*-gain test [9]. The following are the **Table 10**. Results of the contextual-based science Pop Up Book product effectiveness test.

Table 10. Results of creative thinking skills of junior high school students.

Component	Pre-test	Post-test	<i>N</i> -gain	Category
Number of students	35	35		
Lowest score	18.75	50	0.56	Medium
Highest score	68.75	93.75		
Average	38.93	72.98		

The effectiveness of creative thinking skills showed a change before and after contextual-based science Pop Up Book assisted learning was given. The average obtained before learning is 38.93 while after learning it is 72.98. These results indicate an increase in students' creative thinking skills. The *N*-gain test on the contextual-based science Pop Up Book product effectiveness test was calculated with SPSS and the results are shown in **Table 11**.

Table 11. *N*-gain test of learning media Pop Up Book science.

Descriptive statistics					
	<i>N</i>	Minimum	Maximum	Mean	Std. deviation
Ngain_Score	35	0.33	0.80	0.5577	0.11797
Ngain_Persen	35	33.33	80.00	55.7679	11.79675
Valid <i>N</i> (listwise)	35				

The increase in student test results on creative thinking skills is not only seen as a whole, but also seen in each indicator of students' creative thinking skills. The following is the effectiveness of contextual-based science Pop Up Book learning media on each indicator of creative thinking.

Table 12. Results of the achievement of each indicator of creative thinking skills.

Elements	Average score		<i>N</i> -gain score	<i>N</i> -gain percent (%)	Category
	Pre-test	Post-test			
Fluency	9.46	21.07	0.9416058	94.16	High
Flexibility	13.57	17.14	0.4343066	43.43	Medium
Elaboration	8.04	12.86	0.3507343	35.07	Medium
Originality	7.86	21.79	1	100	High

Based on **Table 12** there are significant results from the pre-test to the post-test, where there is an increase in students' creative thinking skills as measured through indicators of fluency, flexibility, elaboration, and originality. Each indicator has a diverse increase and can be interpreted as a positive impact of the application of the developed media, so that students are able to get the opportunity to develop creative thinking skills.

Table 12 shows that the fluency indicator has an *N*-gain value of 0.94 which is categorized as high. This indicator is able to foster students' skills to generate ideas

quickly to answer and solve problems in the form of questions posed by the teacher [19]. The increase in fluency indicators is due to students being able to generate many relevant ideas related to the concepts being studied. The media developed can provide visual stimulation and active learning experiences so that students can easily generate many ideas related to the material being studied.

The increase occurred in the flexibility indicator (flexibility) has an *N*-gain value of 0.43 categorized as moderate. The flexibility aspect is the skill in producing varied ideas with different points of view [20]. This indicator is able to invite students to produce very diverse ideas and show different points of view. Context-based science Pop Up Book media also contains analogies that can invite students to develop flexible creative thinking skills, so the media is able to become a bridge between abstract scientific concepts and real experiences so that it can make it easier for students to understand the material.

The elaboration indicator obtained an increase in *N*-gain value of 0.35 categorized as moderate. Elaboration contains the ability of students to elaborate ideas so that they are clearer and more detailed [20]. This indicator can increase, because students are encouraged to develop ideas in detail, logically, and supported by strong reasons. The learning media developed is able to provide interesting visualizations, interactive, relevant contexts, and various student activities, so that students can develop elaboration creative thinking skills.

The highest increase was in the originality indicator with an *N*-gain value of 1 categorized as high. Originality is the ability of students to generate unique or new ideas, so that responses or answers do not depend on teacher explanations or information contained in student books [19]. This increase is due to encouraging students to produce unique and original ideas. Context-based science Pop Up Book media is able to provide opportunities for students to explore ideas freely and creatively. The media is also able to provide material with interactive 3-dimensional or 2-dimensional visualization, and invite students to make Pop Up according to the creativity of each group.

The next effectiveness test is the analysis of questionnaire results obtained from students' opinions after participating in learning assisted by contextual-based science Pop Up Book. The following is an analysis of student responses based on the aspects listed in **Table 13**.

Table 13. Analysis of student response questionnaire results based on aspects.

No.	Aspects	Percentage (%)	Category
1.	Interest	89.29	Very good
2.	Motivation	89.18	Very good
3.	Response	91.67	Very good
Average value percentage		90.05	Very good

The percentage analysis obtained from the results of the response questionnaire based on aspects, namely 90.05%, is categorized as very good. Ainun and Jefriyanto [21] stated that each aspect in the response questionnaire is an effort to assess the effectiveness of learning media so that it is easy to understand and use in learning

activities. Students felt that the 3-dimensional visualization in the Pop Up Book helped them understand the abstract circulatory system and made the material more relevant and relatable to their daily experiences. Interactive elements such as opening and closing parts of the Pop Up Book make learning more fun and memorable. Class observations after the use of the Pop Up Book can also show that students are more active in asking questions and discussing when using the Pop Up Book, indicating an increase in student engagement in learning.

The student response questionnaire in this study includes aspects of interest, motivation, and response. The aspect of interest received a percentage value of 89.29% which was categorized as very good. Students' interest increases because the learning media uses attractive colorful designs, and presents information that can be connected to everyday life so that students feel enthusiastic and increase their interest in learning. The motivation aspect obtained a percentage value of 89.18% categorized as very good. Student responses in the motivation aspect also received a positive assessment from students, it can be seen that the majority of students agree that when using the media, students are able to master the material easily and foster motivation in the learning process. The response aspect gets a percentage value of 91.67% categorized as very good. Responses in the student response questionnaire contain reactions or opinions of students in general to the media utilized during learning activities.

Pop Up Book offer a unique and highly interactive learning experience through three-dimensional elements that engage the senses of touch and sight, potentially enhancing comprehension and memory retention, especially for visual and kinesthetic learners and children, in contrast to traditional textbooks that provide comprehensive content but lack interactivity and may feel monotonous, and digital learning resources that offer flexibility, accessibility and multimedia integration, but lack the tangible and focused experience of physical books, and are prone to distraction.

Contextual-based Pop Up Book media contains material that is integrated with everyday life, so that students easily understand the material in the media. Habibi and Setyaningtyas [20] stated that the advantage of Pop Up Book media is that it provides a special experience for students because it involves students such as sliding, opening, and folding parts of the Pop Up Book. Aisyah et al. [7] revealed that Pop Up Book media has benefits, namely learning activities become more interesting, contains interesting images on each page so that students are interested and more active in participating in the learning process [9].

Context-based science Pop Up Book learning media makes students more active and enthusiastic during learning activities, however, there are still weaknesses in the implementation of using contextual-based science Pop Up Book learning media in learning activities, namely the use of Pop Up Book made of paper will be vulnerable to damage if not properly maintained, especially if used by many students in the learning process. How to overcome these weaknesses is to make a Pop Up Book made of thick paper with the aim that it is not easily damaged and torn, and explain how to use the Pop Up Book correctly.

4. Conclusion

Contextual-based science Pop Up Book learning media has validation results that

are classified as very valid with an average percentage value of 88.28%, so that contextual-based science Pop Up Book can be used for learning in class. The practicality test was observed during the learning process and was observed by the three observers and showed a very practical category with an average percentage value of 89.14%. The effectiveness of the contextual-based science Pop Up Book consists of an *N*-gain score with a medium category with a score of 0.56 obtained from an increase in pre-test and post-test scores, as well as through a student response questionnaire after using a contextual-based Pop Up Book IPA which gets an average score of 90.05% categorized as very good. So, contextual-based science Pop Up Book learning media has high validity, practicality, and effectiveness in learning science in junior high school.

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