How Picture Storybook Improve Creative Thinking Skills and Learning Outcomes of Elementary School Students?

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Keywords:
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ABSTRACT

The lack of creative and innovative media use can make the atmosphere of learning activities tend to be boring and students find it difficult to understand the subject matter discussed in class, so that students become less active, independence and interaction of students in the learning process is not visible so that students tend to be passive and uncommunicative. This study aims to produce an appropriate Picture Storybook, produce the practical picture Storybook, and reveal the effectiveness of the media produced to improve students' thinking skills and learning outcomes. This research was R&D with the Borg & Gall model. The subjects in this study were fourth-grade elementary school students. Data collection in the initial study was carried out through observation and interviews. Product validation was carried out by material experts and media experts. Data analysis used independent sample t-test and MANOVA test. The results of this study are in the form of a picture storybook that is suitable for use based on the results of the validation with the "very appropriate" category. Independent sample t-test on creative thinking skills resulted in a significance value of 0.008, which means that there is a difference in the average creative thinking skills of students who use picture storybook media. Independent sample t-test on student learning outcomes resulted in a significance value of 0.001, which means that there is a difference in the average student learning outcomes using picture storybook media. The MANOVA test results show a significance value of 0.001 less than 0.05, which means that the picture Storybook media has a significant effect on creative thinking skills and learning outcomes.

1. INTRODUCTION

Implementation of the 2013 curriculum uses a scientific approach (Budiani et al., 2017; Fitri et al., 2017). Scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through stages of observing (to identify or find problems), formulating problems, proposing or formulating hypotheses, collecting data with various techniques, analyzing data (reasoning), drawing conclusions, and communicating concepts, laws or principles found (Hosnan, 2014; Siswono, 2017). Learning process in the 2013 Curriculum for using a scientific approach for all levels covering observing, asking, trying, reasoning, and communicating (Arum & Wahyudi, 2016; Hosnan,

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Based on the results of observations in the field, the lack of creative and innovative media use can make the atmosphere of learning activities tend to be boring and students find it difficult to understand the subject matter discussed in class, so that students become less active, independence and interaction of students in the learning process is not visible so that students tend to be passive and uncommunicative. The lack of creative and innovative learning media has an impact on student activity in learning. The results of interviews conducted on fourth grade students of SD Negeri 2 Balong, SD Negeri 3 Balong, and SD Negeri 4 Balong revealed that 55% of students did not want to answer when asked a question and some students did not think creatively in answering questions. In addition, based on the data provided by the teacher, it shows that student learning outcomes are still relatively low. Students do not understand the material presented by the teacher well, so they need creativity and innovation from the learning presented. The learning process must be carried out interactively to motivate students to actively participate. It is also important to utilize interesting learning media and materials, one of which is innovative media. The use of instructional media can maintain students’ attention, encourage process, and improve class performance through increased content acquisition (Abdo & Semela, 2010; Antara et al., 2022). It is in line with previous study who stated that learning will be more creative and effective by using learning media (Antara & Dewantara, 2022; Eryilmaz et al., 2015). In more detail, learning media can provide a deeper understanding and motivation for students (Heo, 2012). Teachers need to formulate learning strategies that can help students be more creative and active in learning, not just instilling concepts. Teachers in the 21st-century should have skills that support the implementation of a good learning process. These skills are required for the development of creative and innovative learning media. This 21st-century learning covers Critical Thinking, Creativity, Collaboration, Communication (4C), and information and communication technology literacy to select, criticize, evaluate, synthesize, and use information (Parmiti et al., 2021; Redhana, 2019).

To realize the success of 21st-century learning, teachers are expected to be able to develop creative and innovative learning media so that students are proactive in learning. The presence of the media can encourage students to think critically and creatively because the media can provoke students’ curiosity through messages conveyed in the learning media. Students’ critical thinking skill is not only focused on achieving the KKM (minimum completeness criteria) in cognitive assessment but also trains students to understand problems and find solutions with various strategies or methods. Sitompul (2003) argues that creative thinking is a divergent way of thinking or a combination of two faces in thinking, namely judges (analytical, rational and logical) and dreamers (imaginative, impulsive and intuitive). Creative thinking is the ability to produce original ideas/solutions in a problem-solving process (Hadar & Tiros, 2019; Milicevic et al., 2020). Creative thinking is also defined as the ability to create or provide a unique idea from an alternative point of view (McGregor, 2007; Piaw, 2014). In the learning process, creative students can solve a problem using different ways (Ersoy & Başer, 2014; Voroshilov et al., 2018). In school, children are usually only trained to think "convergent" or think logically, so that they can only find a solution to a problem. They are not stimulated to think "divergent" or think creatively to find various possible solutions to a problem. In the past, intelligence was only seen as an analytical ability and memorization ability, but now intelligence is more valued as a high order thinking skill which consists of 19 critical thinking skills, asking questions, and creativity. Creativity is needed to generate ideas that can solve problems, but to improve and improve it requires critical thinking skills.

Creative thinking skills refer to the ability to synthesize new information to produce useful outputs and solutions by thinking divergently (Eshun & Amoako-Agyeman, 2016; Partiningsih, 2018). Divergent thinking is a cognitive process that produces fluent, flexible, original, and elaborate ideas (Barbot et al., 2020; Prieto et al., 2008). Fluent, flexible, original, and elaborate ideas are solutions produced by students from the cognitive processes. Previously, creativity was not an interesting topic for teachers because creativity was associated with a lack of discipline, stubbornness, impulsivity, unwillingness to listen to others’ opinions, and often asking questions/causing unexpected situations in class (Beghetto, 2008; Mullet et al., 2016). Currently, creativity is viewed to have two important aspects, namely originality (unusual/originality/novelty) and usefulness so that it can be applied more in society (So & Hu, 2019). Learning media can grow students’ creativity well. Learning media are a tool that can help the teaching and learning process and function to clarify the meaning of the message conveyed in order to achieve learning objectives better (Antara et al., 2022; Kustandi & Sutipto, 2013). Learning media defined as tools and materials used by teachers to convey messages verbally and non-verbally to students in the teaching and learning process (Arfinanti, 2018; Kustandi & Sutipto, 2013). Therefore, learning media are important to achieve good learning outcomes. One of the learning media is picture storybooks. Picture books are a sophisticated art form and have an important role in children’s literacy and literary development (Yokota & Teale, 2014). Furthermore, Picture storybooks are unique in using art and text as complements. The main goal is to make children literate and art literate because picture storybooks are...
second intermediaries and not limited to one subject only (Massey, 2015; Yokota & Teale, 2014). Referring to Jean Piaget’s theory regarding the concrete operational stages of elementary school students, children at this school level have an interest in detailed realistic object representations and human objects (Grandstaff, 2012). Furthermore, pictures in the storybooks can contribute to children’s language, creativity, intellectual and artistic development (Özsezer & Canbazoglu, 2018). The elements of picture storybooks can support students’ learning to transfer information to the real world. Picture storybooks can transfer words and letters, science concepts, problem solutions, and morals based on text and pictures. This is in line with previous study who states that elementary school students can interact more easily with picture storybooks if the characters are humans, not animals (Zohrabi et al., 2019). Furthermore, compared to speeches or lectures, picture storybooks expose children to a richer language. Picture storybooks can be an important source of vocabulary for children, especially books that contain unique types of words (Zohrabi et al., 2019). The length of the story and the number of pages is also important to consider in the selection of children’s book (Beeck, 2015; Colwell, 2013). The description above is what underlies researchers in conducting research. This study aims to produce appropriate picture Story Book media to improve students’ thinking skills and learning outcomes of fourth grade elementary school students, produce practical picture story book media to improve students’ thinking skills and fourth grade elementary school student learning outcomes, and revealing the effectiveness of the resulting media.

2. METHODS

This research used Research and Development (R&D) method with Borg & Gall model. Research and Development (R&D) is a research process used to develop and validate an educational product (Mahfud and Fahrizqi, 2020). The results of product development covered picture storybooks, creative thinking skill tests, and student learning outcomes tests. The procedure for developing picture storybook media to improve creative thinking skills and learning outcomes in elementary schools was based on Borg and Gall’s model which consists of 10 stages, as shown in Figure 1.

![Figure 1. Borg and Gall Model](image)

The research was conducted in September-October 2021 in Gugus II, Kembang Sub-district, Jepara District. The research subjects were the fourth-grade elementary school students and classroom teachers. Data were collected using questionnaires and tests. Data collection instruments were questionnaires for media and material validation by experts, questionnaires for students and teacher, creative thinking skill test, and learning outcomes. Data obtained were then analyzed using independent samples t-test, paired-samples t-test, and MANOVA test.

3. RESULT AND DISCUSSION

Results

The first step in this research is to make observations and interviews to find out the problems that occur. Based on the results of observations and interviews from several schools in SD Kembang Elementary School, it was found that 64% of teachers used existing books and mostly used conventional methods in learning without learning methods in accordance with the 2013 curriculum. 3 Balong and SD Negeri 4 Balong revealed that 55% of students did not want to answer when asked a question and some students did not think creatively in answering questions. Even given after the question 75% of students’ cognitive learning outcomes have not reached the KKM. The results of the needs analysis show that teachers need learning innovations that are in accordance with student development, able to facilitate learning to create active learning. Literature The study was also carried out by researchers to collect
various sources, information, as well as research theory and development of picture story books so that books meet these criteria and are effective for improving creative thinking skills and learning outcomes of fourth grade elementary school students in Kembang District, Jepara Regency. After conducting a needs analysis, the next step is the planning stage, by setting the important goals of the product being developed. At this stage, an analysis of the Core Competencies (KI) and Basic Competencies (KD) is carried out which is integrated with several subjects. Furthermore, the appropriate material as a picture story book material is on the theme of the beauty of diversity.

Figure 2. The Display of the Picture Storybook Cover

The development of the picture storybook appearances used Adobe Photoshop and Adobe illustrator as presented in the Figure 2 and Figure 3. The development of picture storybook learning media required some stages of development and trials. It aims to get a quality product suitable for learning activities. The results of the validation by experts are presented in Table 1. The results of validation by media experts and material experts obtained an average score of 4.5 and 4.0 respectively. Based on the validation results, it can be concluded that the developed picture storybook media is appropriate to use.

Table 1. Results of Product Validation by Experts

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Score</th>
<th>Average score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display suitability</td>
<td>8</td>
<td>4.00</td>
<td>Appropriate</td>
</tr>
<tr>
<td>Readability</td>
<td>22</td>
<td>4.40</td>
<td>Very Appropriate</td>
</tr>
<tr>
<td>Attractiveness</td>
<td>20</td>
<td>5.00</td>
<td>Very Appropriate</td>
</tr>
<tr>
<td>Relevance between media and learning materials</td>
<td>14</td>
<td>4.70</td>
<td>Very Appropriate</td>
</tr>
<tr>
<td><strong>Total score</strong></td>
<td><strong>64</strong></td>
<td><strong>4.50</strong></td>
<td><strong>Very Appropriate</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Score</th>
<th>Average score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance of learning media</td>
<td>26</td>
<td>4.30</td>
<td>Very Appropriate</td>
</tr>
<tr>
<td>Systematic</td>
<td>4</td>
<td>4.00</td>
<td>Appropriate</td>
</tr>
<tr>
<td>The effectiveness of learning media on learning materials</td>
<td>30</td>
<td>3.75</td>
<td>Appropriate</td>
</tr>
<tr>
<td>Clarity of learning media</td>
<td>4</td>
<td>4.00</td>
<td>Appropriate</td>
</tr>
<tr>
<td><strong>Total score</strong></td>
<td><strong>64</strong></td>
<td><strong>4.00</strong></td>
<td><strong>Appropriate</strong></td>
</tr>
</tbody>
</table>

The quality of the picture storybook learning media in terms of practicality in using the media was reviewed based on teacher and students’ responses to questionnaires. The questionnaire was distributed after the initial trial and field trial stages, as shown in Table 2. During the trials, the teacher and students used the picture storybook learning media for learning and filled out the questionnaires. Based on the results of the initial trial, the results of the teacher’s response got an average score of 4.3 with a very appropriate category. Furthermore, the results of student responses obtained an average score of 4.2 with a very decent category. The response of the product user indicates that the picture storybook learning media is appropriate to use with some revisions.
Table 2. Results of Student’s and Teacher’s Responses to Media

<table>
<thead>
<tr>
<th>Subject</th>
<th>Aspect</th>
<th>Score</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Initial trial</td>
<td>4.20</td>
<td>Very appropriate</td>
</tr>
<tr>
<td></td>
<td>Field trial</td>
<td>4.40</td>
<td>Very appropriate</td>
</tr>
<tr>
<td></td>
<td>Operational trial</td>
<td>4.40</td>
<td>Very appropriate</td>
</tr>
<tr>
<td>Teacher</td>
<td>Initial trial</td>
<td>4.30</td>
<td>Very appropriate</td>
</tr>
<tr>
<td></td>
<td>Field trial</td>
<td>4.25</td>
<td>Very appropriate</td>
</tr>
<tr>
<td></td>
<td>Operational trial</td>
<td>4.90</td>
<td>Very appropriate</td>
</tr>
</tbody>
</table>

After the revision, then the product was tested in field trials. Based on the results of field trials, the teacher’s response obtained an average score of 4.25 with a very appropriate category. Furthermore, the results of student responses obtained an average score of 4.4 with a very appropriate category. The response of the product user indicates that the picture storybook learning media is appropriate to use with some revisions. Then after completing the revision, the product was then tested in operational trials. The teacher’s response obtained an average score of 4.9 with a very appropriate category. Moreover, the student’s responses obtained an average score of 4.4 with a very appropriate category. The response of the product user indicates that the picture storybook learning media is appropriate to use with some revisions. The next step was to test the effectiveness of the picture storybook in increasing students’ creative thinking skills and learning outcomes. The results of the effectiveness tests were analyzed using the independent sample t-test, paired-samples t-test, and MANOVA test.

Table 3. Test Results of Independent Samples t-test of Creative Thinking Skills

<table>
<thead>
<tr>
<th>No.</th>
<th>Data</th>
<th>Group</th>
<th>Sig value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>Experimental and Control</td>
<td>0.148</td>
<td>Ho is accepted</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>Experimental and Control</td>
<td>0.008</td>
<td>Ho is rejected</td>
</tr>
</tbody>
</table>

Based on Table 3, the significance value of the independent samples t-test on the pretest data is 0.148. It indicated that the significance value is 0.148 > 0.05 do that Ho is accepted. Thus, it can be concluded that there is no difference between the creative thinking skills in the experimental group and the control group. Then, the results of the independent samples t-test on the post-test data obtained a significance value of 0.008 so Ho is rejected. So it can be concluded that there are differences in creative thinking skills in the experimental group and the control group.

Table 4. Results of Independent Samples t-test of Learning Outcomes

<table>
<thead>
<tr>
<th>No.</th>
<th>Data</th>
<th>Group</th>
<th>Sig value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>Experimental and Control</td>
<td>0.425</td>
<td>Ho is accepted</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>Experimental and Control</td>
<td>0.001</td>
<td>Ho is rejected</td>
</tr>
</tbody>
</table>

Based on Table 4, the results of the independent samples t-test of learning outcomes for the pretest showed a significance value of 0.425 so that Ho is accepted. It indicates that there is no difference between the students’ initial independence in the experimental group and the control group. Then the post-test data showed a significance value of 0.001 so Ho is rejected. It indicates that there are differences in post-test of learning outcomes between the experimental and the control groups. Based on the data from the paired samples t-test, the significance value of the pretest-posttest for creative thinking skills was 0.00 < 0.05. It indicates that there are differences in creative thinking skills before and after using picture storybook media. Then, the learning outcomes data also showed a significance value of 0.000 <0.05. Thus, it can be concluded that there are differences in students’ learning outcomes before and after using picture storybook media. Then, the results of the hypothesis test can be seen in Table 5.

Based on Table 5 of the hypothesis test using MANOVA, Pillai’s Trace, Wilks’ Lambda, Hotelling’s Trace, Roy’s, and Largest Root have a significance value of 0.019 < 0.05. The results of the hypothesis test indicate that Ho is rejected. So it can be concluded that there are differences in creative thinking skills and simultaneous learning outcomes between students who and students who do not use picture storybook media. Therefore, the picture storybook media can improve the students’ creative thinking skills and learning outcomes simultaneously.
Table 5. Results of Hypothesis Test using MANOVA

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypoth df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s Trace</td>
<td>0.986</td>
<td>1330.234</td>
<td>2.000</td>
<td>37.000</td>
<td>0.000</td>
<td>0.986</td>
</tr>
<tr>
<td>Wilks’ Lambda</td>
<td>0.014</td>
<td>1330.234</td>
<td>2.000</td>
<td>37.000</td>
<td>0.000</td>
<td>0.986</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
<td>71.905</td>
<td>1330.234</td>
<td>2.000</td>
<td>37.000</td>
<td>0.000</td>
<td>0.986</td>
</tr>
<tr>
<td>Roy’s Largest Root</td>
<td>71.905</td>
<td>1330.234</td>
<td>2.000</td>
<td>37.000</td>
<td>0.000</td>
<td>0.986</td>
</tr>
<tr>
<td>Pillai’s Trace</td>
<td>0.332</td>
<td>9.197</td>
<td>2.000</td>
<td>37.000</td>
<td>0.001</td>
<td>0.332</td>
</tr>
<tr>
<td>Wilks’ Lambda</td>
<td>0.668</td>
<td>9.197</td>
<td>2.000</td>
<td>37.000</td>
<td>0.001</td>
<td>0.332</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
<td>0.497</td>
<td>9.197</td>
<td>2.000</td>
<td>37.000</td>
<td>0.001</td>
<td>0.332</td>
</tr>
<tr>
<td>Roy’s Largest Root</td>
<td>0.497</td>
<td>9.197</td>
<td>2.000</td>
<td>37.000</td>
<td>0.001</td>
<td>0.332</td>
</tr>
</tbody>
</table>

Discussion

Learning media are important for learning activities. The use of learning media aims to support learning activities to be more effective. Learning media that are used properly can improve students’ understanding in order to achieve learning goals (Antara et al., 2022; Sari et al., 2017). Thus, it is necessary to develop learning media that can have a positive impact on the needs of creative thinking skills and student learning outcomes, namely developing picture storybook media. The selection of learning media needs to be adjusted to the age and characteristics of the students. In cognitive development, elementary school students aged 7 to 11 years learn from real life. This is in line with statement that at the concrete operational stage, students can solve various relevant problems through actions (Ghazi et al., 2016; Halford, 2016). The quality of the picture storybook learning media in terms of practicality in using the media was reviewed based on teacher and students’ responses to questionnaires. The questionnaire was distributed after the initial trial and field trial stages. During the trials, the teacher and students used the picture storybook learning media for learning and filled out the questionnaires. The students’ enthusiasm in using picture storybook media can be seen when they actively participate in giving opinions and asking questions. Besides, the interaction between students with story narratives and illustrated images are elements of creative thinking as proposed that the combination of text and images in picture storybooks can help students be more engaged in the world around them and imagine new ways to interact with it (Mol et al., 2009; Saccardi, 2014). The use of picture storybook media can clarify the presentation of messages and information in order to facilitate and improve students’ thinking skills. Picture storybook media can clarify the presentation of information so that it can facilitate and improve thinking skills (Arsyad, 2014).

The picture storybook media can make it easier to translate abstract concepts or ideas to stimulate students’ critical thinking skills. It is in line with previous study who states that picture storybook can translate abstract concepts or ideas into realistic ones so that they can stimulate students’ critical thinking skills (Daryanto, 2010; Mol et al., 2009). Learning by using picture storybook media is effective in improving students’ learning outcomes. The results of the study are in line with a study entitled "Development of Integrative Thematic-Based Digital Picture Book Media to Improve Learning Outcomes of the Fifth-Grade Students of Elementary Schools" that digital picture book media are effective in improving students’ learning outcomes (Ardhiniswari, R. S. et al., 2020; Souisa et al., 2020). Picture storybook media can improve students’ learning outcomes. Students enjoy materials by accessing a link that contained animation and sound to narrate the story. Children love digital things. In this digital era, learning to tell stories can also be combined with advanced technology. Usually, the students received questions dominated by the C1 level, while the questions used in the study were C4 and C5 so the students needed the ability to reconstruct the material. Students’ learning outcomes were assessed in terms of the cognitive domain. Cognitive learning outcomes cover some levels according to Bloom’s taxonomy (C1, C2, C3, C4, C5, and C6). The results of hypothesis testing using the MANOVA test show that the values of Pillai’s Trace, Wilks’ Lambda, Hotelling’s Trace, Roy’s and Largest Root have a significance level of 0.001 < 0.05. The results indicate that learning by using picture storybook media is effective in increasing students’ creative thinking skills and learning outcomes simultaneously. The results of hypothesis testing using independent sample t-test and paired sample t-test on creative thinking skills data obtained a significance level of 0.000 < 0.05. The results indicate that learning with picture storybook media is effective in improving students’ creative thinking skills. Thus, picture storybook learning media can be used to improve students’ creative thinking skills. Creative thinking skills of second-grade elementary school students after using the developed media experience positive changes characterized by a significant increase (Ardhiniswari, R. S. et al., 2020). The students’ enthusiasm in using picture storybook media
media can be seen when they actively participate in giving opinions and asking questions. Besides, the interaction between students with story narratives and illustrated images are elements of creative thinking as proposed that the combination of text and images in picture storybooks can help students be more engaged in the world around them and imagine new ways to interact with it (Saccardi, 2014).

4. CONCLUSION

Based on the operational trial, there were differences in students' understanding and enthusiasm that were seen in participating in learning using picture story book media between the control class and the experimental class. The enthusiasm of students who use picture story book media is seen when they participate in giving opinions and asking questions. Besides that, when Limited Face-to-face Learning (PTMT) was conducted during the research. The learning process that was previously carried out boldly, moved to PTMT but students were still enthusiastic about participating in learning. The form of the questions presented is different from the questions that are usually done. The questions that are usually accepted are dominated by the C1 level, while the questions used in the study consist of C4 and C5 so that the ability to reconstruct the material being studied is needed. So, the impact of students will be more complex in thinking. Furthermore, in addition to reading picture story books using printed media, most students like to present products using a link address which includes animation and voice actors for the story. So that the impact of learning is more meaningful and students' attention is better because the media contains animation, images, text, and also voice actors. The developed product is appropriate, practical, and effective to improve students' creative thinking skills and learning outcomes in the fourth-grade elementary school based on the results of validation by experts, teacher and students' responses, and hypothesis testing.

5. ACKNOWLEDGEMENT

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