

## Research Article

# Improving student activities and learning outcomes through implementation of pop-up book media in discovery learning

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## ABSTRACT

One of the crucial things in achieving maximum learning outcomes is using learning media that can facilitate active student learning. Therefore this study aims to examine the use of Pop-up book media in discovery learning to improve student learning processes and outcomes. The approach is qualitative, with a classroom action research type. The research subjects were 12 grade IV students at SDN 105 Pinrang. This research was conducted in 2 cycles. Observation techniques, tests, and documentation obtained data. This study focuses on the learning process (student activities) and student learning outcomes. The results showed that the learning process (student activities) using Pop-up book media in discovery learning in cycles I and II improved. In line with the improvement in the learning process, student learning outcomes also increased from having sufficient qualifications in cycle I to be well qualified in cycle II. This study concludes that using pop-up book media in discovery learning can improve the process (student activities). The learning process becomes more lively because two-way communication is established, students active participation makes learning more meaningful and powerful. The learning syntax in discovery learning can facilitate students using pop-up book media because it can stimulate students to be active in learning. Students are encouraged to identify material in the media, and the use of pop-up book media in learning discovery learning changes teacher-oriented learning to student-oriented. This positively impacts student learning outcomes, which increase as the learning process increases.

**Keywords:** pop-up book; discovery learning; student activities; learning outcomes

## 1. INTRODUCTION

Social Sciences is a compulsory subject in the elementary school curriculum that should develop students' systematic, argumentative and logical thinking attitudes, and learning good social sciences should make students think critically, solve problems and produce something new, which are complex activities closely related, because a problem cannot be solved without thinking, and many problems require new solutions through creative thinking (Russell III & Waters, 2021). The ideal social studies learning process should involve students actively, be presented interestingly, and encourage students to collaborate, thereby increasing students' creativity in thinking, activeness, and enthusiasm for learning. Ideal social studies learning in the school environment is learning activities that facilitate students to acquire experience, knowledge, and understanding through learning activities (Gillis & Munro, 2006). However, the reality is that social sciences learning in class IV at SDN 105 Pinrang, South Sulawesi, Indonesia could be better because most students are not interested in social studies lessons. This can be seen from the expressions of students who seem bored, less focused, bored, and passive during the learning process. Based on the data collected by researchers from observations, it was found that facts in class caused learning to be less than optimal; 1) The use of learning media that was less attractive, 2) The implementation of learning in schools still used conventional methods, namely conveying material using only book media, 3) Students are not interested in the media used because it is monotonous, 4) Students cannot imagine because the media used is abstract, and 5) Students' low reading interest in book media.

There are various alternatives that teachers can do to facilitate effective social studies learning in elementary schools. One of them is using appropriate learning media, such as visual learning media, in the form of books. However, today's books are dominant in containing material presented in the form of descriptive essays. This makes students lazy to read. In addition, the lack of images that appear makes students reluctant to learn it. Students' minimal and monotonous activity when using books, namely only by reading and answering questions, also encourages them to be less enthusiastic about using them. Based on the literature review, one alternative learning media that is suitable for overcoming the problem of the ineffective use of books to support the learning process in elementary schools is the use of Pop-up book media with discovery learning settings. Pop-up book media is a three-dimensional image medium that can move and be combined with other images to make it look more attractive, because students can see the shape of an object without explanation in the form of spoken words (Haryanto & Karyono, 2021). Confirmed by Sari & Ulya state that "a pop-up book is a book that can display images with three-dimensional effects that arise when the book is opened and provide a unique stir effect when

pulled on some parts." (Sari & Ulya, 2017). The results of Fitri research show the advantages of Pop-up book media, namely: (1) Pop-up book media can be used independently or in groups; (2) each page in the Pop-up book contains interesting pictures to make students more active and enthusiastic about participating in class learning activities; (3) students can interact with the learning material contained in the Pop-up book; (4) overcoming the limitations of space, time and observation because not all things, objects or events can be brought into the classroom; (5) the contents of the Pop-up book are concrete, that is, they are more realistic than verbal media; (6) Pop-up books can be a source of learning for all ages; (7) Pop-up book has a unique appearance that is different from other media and can visualize images that appear alive (Fitri, 2018).

In the learning process, in addition to the need to use learning media to achieve learning objectives effectively, a learning model is needed to help use the media. One of the learning models that is suitable for use is the discovery learning model. Discovery Learning model is a learning model where students must play an active role in a learning process activity (Darling-Hammond, 2008; Honomichl & Chen, 2012; Memarovic et al., 2012). Discovery learning model is also interpreted as a way of learning to understand concepts, meanings, and relationships through an intuitive process to conclude finally (Marisyah & Sukma, 2020). Discovery learning occurs when individuals are involved, especially in using their mental processes to discover learning concepts. Learning activities using this model are student-centered, so students get meaningful and solid learning. The advantages of the discovery learning model are; (1) to help develop students' mastery of skills and cognitive processes so that the knowledge acquired is solid; (2) arousing students' enthusiasm; (3) helping to strengthen the personality by increasing student self-confidence; and (4) giving students opportunities to participate in the learning process (Suryobroto, 2012). Discovery learning model consist of 6 steps, namely: (1) Stimulation, providing stimulation to students, (2) Problem Statement, the stage of identifying problems that are relevant to the subject matter, (3) Data Collection, the stage where students collect the required data, (4) Data Processing, the stage of processing the data that has been collected, (5) Verification, the stage where students and teachers carry out checks related to the data obtained, and (6) Generalization, the process stage of concluding (Kemendikbud, 2013; Memarovic et al., 2012)

Based on the background of the problems that have been described, the results of observations at SDN 105 Pinrang, and a review of the literature on the use of Pop-up book media, the research problem is "How is the use of Pop-up book media in discovery learning to improve the learning process and learning outcomes of social studies class students IV SDN 105 Pinrang?" The purpose of this study is to increase the activity of teachers and students in the learning process and student learning outcomes by using the Pop-up book media in discovery learning. As a basic reference for carrying out this research, researchers have reviewed the literature on pop-up book media in elementary school learning conducted by previous researchers. For example, research on the implementation of pop-up book media in conventional learning settings has been conducted, which shows that the use of pop-up book media can improve student learning outcomes (Amalia & Setiyawati, 2020; Arip & Aswat, 2021; Fajria, 2021; Fitri, 2018; Komari et al., 2022; Oktaviyani, 2019; Solichah & Mariana, 2018). Other researchers conducted research by implementing pop-up book media in innovative learning models such as discovery learning settings (Ningsih et al., 2019; Pratiwi, 2021; Wardani, 2020; Yuliani et al., 2020), project-based learning setting (Kristiani et al., 2020; Mustika & Ain, 2020), snowball throwing (Diyantari, 2020). Based on the literature review, most previous research has examined pop-up book media in conventional learning settings. In contrast, more needs to be done for its implementation in innovative learning settings.

## 2. RESEARCH METHOD

The study design used in this study is the Classroom Action Research model developed by Elliot (Elliott, 2001). The main concept of this research design consists of four main stages: 1) planning, 2) implementation, 3) observation, and 4) reflection. The research subjects were 12 class IV students with a classification of 9 male students and 3 female students. The research was conducted in the odd semester of the 2022/2023 academic year at SDN 105 Pinrang. In this study, data collection was carried out by observing the activities of teachers and students using observation sheets and 2) student learning achievement tests. At the planning stage, the activity carried out is to plan the implementation of learning in class using Pop-up book media in discovery learning, including: a) examining the curriculum used in social studies learning in class IV; b) Developing a Learning Implementation Plan for social studies learning focus on spatial characteristics; c) preparing Pop-up book media on spatial characteristics sourced from the theme 3 student book and trusted websites; d) make observation sheets of teacher and student activities during learning activities taking place in class; e) make group worksheets and evaluation sheets of multiple choice questions. At the implementation stage, the activities carried out were learning activities in class IV SDN 105 Pinrang using two cycles. Namely, in the first cycle, carried out 1 meeting, and for the second cycle, there would be 1 meeting with an allotted time of 2 x 35 minutes.

The implementation of the use of Pop-up book learning media is carried out using the steps (syntax) of the discovery learning model, namely: 1) the stimulation stage, 2) the problem statement stage, 3) the data collection stage, 4) the data processing stage, 5) the verification stage and 6) the generalization stage. At the Observation stage, the activity observes the course of the action process of using Pop-up book media in discovery learning. Observation of teacher activities and student learning activities during the learning process is carried out using observation sheets. In the Reflection stage, the activity analyzes and reflects on student learning outcomes after using the Pop-up book learning media in discovery learning. This stage aims to determine the achievement of success criteria regarding the learning process and student learning outcomes. In addition, to find weaknesses and take corrective actions in the next cycle.

## 3. RESULTS AND DISCUSSION

The use of Pop-up book learning media in discovery learning in cycles I and II is carried out in the following steps: 1) the stimulation stage includes a) the teacher gives motivation to students before starting to use pop-up book media so that

students are enthusiastic about learning; b) the teacher prepares pop-up book media about the characteristics of space and its utilization to be used in the learning process; c) before dividing into groups the teacher prepares the room and classroom atmosphere and arranges student group chairs. 2) the problem statement stage includes a) the teacher dividing students into 3 heterogeneous groups of 4 people and distributing pop-up book media about spatial characteristics; b) explaining the important points of learning material on the characteristics of space and its utilization; c) the teacher distributing worksheets. 3) the data collection stage includes a) the teacher teaching students how to retrieve data on pop-up book media; b) the teacher guiding students to collect data through observation of pop-up book media; c) the teacher guiding students in identifying data on pop-up book media. 4) the data processing stage includes: a) the teacher directs students to prepare identified data; b) the teacher directs each group to discuss the results of identifying data that has been collected through observation; c) the teacher asks students to record the results of the discussion, 5) the verification stage includes: a) the teacher guides students to find the truth of the data being discussed b) the teacher encourages students to ask questions regarding things they have not understood actively; c) the teacher guides students to complete written worksheets systematically. 6) the generalization stage includes: a) the teacher invites representatives of each group to come forward to present the results of their group's work; b) the teacher gives.

### 3.1 Process and Learning Outcomes of Cycle I

Analysis of the first observation cycle results shows that student learning activities are still sufficient qualification. Student activities that need to be improved are; 1) the stimulation stage of students pays less attention to motivation related to learning materials and is less orderly in group chair arrangements; 2) the problem statement stage, students are less orderly in sitting with their group members; 3) the data collection stage, students do not understand how to collect and identify the data obtained, 4) the data processing stage students lack in preparing data and lack discussions with their group mates, 5) the verification stage students do not verify data with the teacher and are still afraid to ask. These results indicate that student activity has not been maximized, and the level of student participation in cycle I have not reached the established criteria, namely  $\geq 76\%$ . Research data on aspects of student learning outcomes in cycle I show that the lowest score achieved by students was 50, and the highest score was 90, with an average class score of 73.33. Even though it was not optimal, there was an increase in students who reached the minimum standard mark, from 42% before the action to 68% after the first cycle. Based on the results of reflection and discussion with observers, several factors cause the process and student learning outcomes to be not achieved because: (1) there are still students who need to be more orderly when dividing groups. ; (2) students are not used to using Pop-up book media in discovery learning and learning in groups; (3) students do not follow the teacher's directions in using Pop-up book media; (4) students do not know and do not understand how to identify data because of a lack of direction and guidance from the teacher; (5) students are still hesitant and afraid to ask questions regarding material that they do not understand because of the lack of encouragement from the teacher so that students actively ask questions; (6) students lack the confidence to make presentations and are embarrassed to answer in front of the class.

### 3.2 Process and Learning Outcomes of Cycle II

Analysis of the second observation cycle results shows that student learning activities are already in Good qualifications. However, some things still need to be improved. Namely, there are still students who need to be more in identifying data, and there are students who do not want to be randomly assigned to read out the results of their group identification because they are embarrassed. The changes in the learning process that occur are that students are orderly and conducive when dividing groups so that the class atmosphere is more comfortable, students are used to using Pop-up book media with discovery learning and learning in groups, the intensity of interaction between students also increases, with directions student teachers understand more about how to identify the data presented, the enthusiasm, enthusiasm, and activeness of students increases compared to cycle I, students begin to dare to come forward to present the results of their discussions even though there are still students who lack confidence. Improving the learning process from the aspect of student learning activities has increased student learning test results. The lowest score is 60, and the highest score is 100, with a class average of 85, and as many as 83% have scored above the minimum standard.

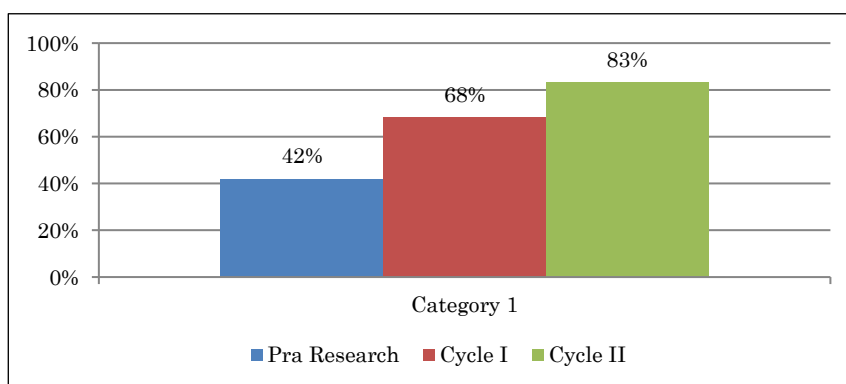


Figure 1. Graph of student learning outcomes

### 3.3 Discussion

The use of pop-up book media in discovery learning on the material characteristics of space and resource utilization of class IV SDN 105 shows an increase that can be seen from the activities, learning outcomes, and student learning completeness in the improvement of the cycle I and cycle II. This has a good impact on students' mastery and understanding of concepts in social studies subjects in achieving learning mastery. Based on observational data during the implementation of the cycle I to cycle II, there was a change in the learning process. In Cycle II, the process of implementing learning using pop-up book media in discovery learning went well, and this was because students were familiar with the learning steps used. The use of pop-up book media in discovery learning makes learning more varied. It increases enthusiasm, supports student learning responses, and encourages students to participate in the learning process. This can be seen when the teacher distributes media, divides into groups, and when students identify content from Pop-up book media, in line with states that the application of a pop-up book on learning the elements of such a show increased enthusiasm of learners in the learning process (Sari & Ulya, 2017). The increase in student enthusiasm during the learning process is due to the emergence of student interest and motivation caused by the use of pop-up book media. This is because every page that is displayed affects its readers. In line with research result that pop-up book media can increase student motivation and achievement because this media has advantages such as surprises on each page (Amalia & Setiyawati, 2020)

The use of pop-up book media in discovery learning in the learning process provides space for students to play an active role, participate in the learning process through discussion activities and respond to questions, making learning felt by students more meaningful and interesting, thereby encouraging students' curiosity about learning materials. by using the pop-up book media students are more focused on learning, can understand the material contained in the pop-up book and by using this media students begin to be interested in the learning presented. This is in line with the function of the pop-up book as a 3-dimensional medium, namely the function of attention to attract students' attention, the affective function can be seen from the enjoyment of students while learning, and the compensatory function, which is to provide context to help students understand the contents of the reading. In addition to increasing student activity, using pop-up book media in discovery learning also makes it easier for teachers to explain learning material and can overcome the limitations of space, material, and time because not all objects can be brought into the classroom. This is in line that pop-up book media has advantages such as (1) being able to overcome space, time, and observation limitations because not all objects, objects or events can be brought into class, (2) are concrete, which is more realistic than verbal media, (3) can be a source of learning for all ages, (4) has dimensional spaces where this book can be in the form of a 3-dimensional structure so that it is interesting to read (Fitri, 2018).

Based on the data analyzed, there are differences in the learning process between the use of the pop-up book setting of discovery learning and the absence of using pop-up book media with the setting of discovery learning. This can be seen through the results of pre-action observations. Students who learn without using pop-up book media are less enthusiastic and less focused on understanding the material. They have yet to show any motivation to learn when reading printed books. This happens because the book media used by the teacher seems dense with reading, and the images presented do not represent the material's content. In contrast to the learning process using the pop-up book setting discovery learning, students are more active, eager to participate in learning, and dare to ask questions and speak in front of the class to answer questions posed by the teacher. The learning process that makes all students happy will make students more interested in learning and not feel bored so that learning outcomes will be satisfying.

Implementing pop-up book media in discovery learning settings also shows harmony and mutual support for improving the learning process. The learning syntax in discovery learning can facilitate students using pop-up book media because it can stimulate students to be active in learning. However, students are encouraged to identify material in the media, and the use of pop-up book media in learning discovery learning changes teacher-oriented learning to student-oriented. This is in line with Yuliani et al. that the use of pop-up book media assisted by the discovery learning syntax has a positive impact on students, where learning is student-oriented, students become more active and motivated to take part in learning because it leads students to find the concept of learning material. Therefore the use of media and learning models is needed in the world of education (Yuliani et al., 2020).

So that the implications of the learning process activities carried out by students lead to changes in behavior as a result of learning marked by students' understanding of the material characteristics of space and utilization of natural resources for the better. Therefore the impact of a well-implemented learning process will improve student learning outcomes. which shows that the use of pop-up book media can improve student learning outcomes. The use of pop-up book media in discovery learning in class IV SDN 105 Pinrang could improve the student learning outcomes. This is in line with previous research (Ningsih et al., 2019; Pratiwi, 2021; Wardani, 2020; Yuliani et al., 2020).

### 4. CONCLUSION

Based on the results of improving the implementation of the learning process, it was concluded that the use of pop-up book media in discovery learning on material characteristics of space and utilization of natural resources in class IV SDN 105 Pinrang could improve the learning process, the learning process becomes more lively because two-way communication is established, students Active participation makes learning more meaningful and powerful. This positively impacts student learning outcomes, which increase as the learning process increases. Based on the conclusions described, the following suggestions are put forward: (1) teachers are expected to use media that are appropriate to learning materials so that learning objectives are achieved, and learning is more meaningful for students. (2) researchers who wish to carry out this research are advised to use pop-up book media with different learning model settings. In the future, innovation will be created from a collaboration between media and learning models.

## AUTHOR'S CONTRIBUTIONS

The author considered the design and analysis, collected the data, performed the analysis, and wrote the paper.

## CONFLICT OF INTEREST

The authors have no conflicting interests of any kind in the submission of this research paper.

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