

## DEVELOPMENT OF BOARD GAME MEDIA “GALAKSI BIMASAKTI PROJECT” TO IMPROVE LEARNING OUTCOMES

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### Abstract :

This study aimed to determine the effect of developing the media board game "Galaksi Bimasakti Project," which is the development of the Snakes and Ladders game. The Galaksi Bimasakti Project has a colorful space design that makes it attractive to students. This game is equipped with pawns, dice, and 3 types of cards: question cards, answer confirmation cards, and punishment cards. The novelty of the Snakes and Ladders concept game is that question cards and answer confirmations have the same number, making it easier for students to find out whether the answers put forward by other players are right or wrong. Other participants will listen and remember the appropriate answers, besides that the attractive design and additional points make students more interested in answering correctly and contributing to their group. In this game the teacher is only a supervisor of the course of the game, in other words the teacher is only a facilitator. The game is carried out by peer tutors in groups so that in preparation for the game. The method used in data analysis is descriptive quantitative using a group design pretest-post-test. The results showed that there was an increase in the class average at the pretest and post-test. Obtained statistical test results of 0.000 stated that there was an influence of the media on learning outcomes after the implementation of the Galaksi Bimasakti board game.

Keywords: Board Game, Learning Outcomes

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## INTRODUCTION

Education in Indonesia continues to grow so that learning must continue to innovate according to the curriculum. The teacher is the key to successful learning, in which the teacher must be careful in designing a lesson. In designing learning, a teacher must refer to a systematic process in presenting learning materials and learning activities (Setyosari, 2014). Innovations and learning methods that are new and appropriate in learning will be able to help students' understanding process so that they are able to apply the knowledge they have acquired (C.-H. Chen & Tsai, 2021; Mutohhari et al., 2021; Soetan et al., 2021). On the other hand, a teacher is not only a teacher but also a facilitator who can be arranged

between students and learning, so that students are able to master the learning material well. It is on this basis that a teacher must be able to master technology in order to be able to create a learning process that is appropriate and appropriate to the times (Aini et al., 2020; Sukendro et al., 2020; Teräs et al., 2020).

Setyosari (2009) revealed that student-centered learning can lead to social construction that can be carried out through peer tutors to work together so that it can be said that students build their own understanding through learning experiences, not teacher-centered. learning. In addition, successful learning is fun learning, can generate interest in learning and student learning motivation. According to Sirat (2016) Interest in learning is the tendency to pay attention and show enthusiasm during learning so that students can remember learning experiences. Interest in learning can be felt; from within the series itself or from a supportive environment. High motivation and interest in learning can improve student learning outcomes. Learning outcomes are abilities or skills that students can achieve through learning activities in certain schools and classes (Sudjana, 2011)

One way that can be used by a teacher to be able to achieve effective learning is by using learning aids known as media. Learning media is a tool that can be used by students which can make it easier for students to understand the material better (Herliana & Anugraheni, 2020). The use of learning media that is appropriate to the characteristics of students will greatly affect the psychology of students, this can increase the level of understanding (Rahayu et al., 2019; Ristante et al., 2020). One of the roles of the media, namely as a tool for teachers in the learning process is useful because it can be used to rearrange visual or verbal information to be conveyed. As a tool in the teaching process, the media can also help provide concrete experiences to students, this can increase the level of absorption and retention of students in the learning process (Chassiakos et al., 2016; Sargeant, 2015; Sri Cahya Dewi & Suyanta, 2019). Another thing that becomes a function of the media in learning is that the media can also be used to assist student learning, so that it can achieve a higher level of success in student learning outcomes (Alit et al., 2021; Khairunnisa & Ilmi, 2020).

In addition, the use of media in the learning process can make learning more varied and students can do well in learning. In this case, students don't just become passive learners and listen to the teacher's explanation, instead students can carry out activities such as observing videos or pictures and conducting demonstrations. (Kurniawati & Koeswanti, 2021; Setiyani et al., 2020). According to Arianti (2020) Good media is media that is interesting and keeps students interested so as to foster enthusiasm in the learning process which then students will more easily understand the concept of the material. So that the selection of media must be interactive so that it is carried out directly by students so that it is more interesting and provides learning construction experience. One of the media that can entertain and can be used as a means of education is game-based media. Games that are carried out in groups are more challenging and interesting for students, because there is competition to win. An example of media is a board game (Chen & Hsu, 2020; Onasaet al., 2021)

So that in designing learning activities the teacher must choose a strategy that is appropriate to the learning problems experienced, the learning strategy is carried out by choosing a learning model or learning media. The right solution to overcome this problem is to develop an innovative teaching media that can increase interest in learning and understanding the concepts of science learning for elementary school students. Basically, interest is a student's tendency towards something he likes, with interest a feeling of pleasure will arise and will affect student achievement, especially in the learning process. Awe & Benghe, 2017; PAP Sari, 2020; Sidiq et al). If students have a good interest in learning. This will certainly increase students' willingness to learn significantly (Agustina, 2015; Nursyam, 2019). Students who have a high interest in learning will have a better understanding of concepts. (Mansur & Rafiudin, 2020; Yunitasari & Hanifah, 2020).

Previous research findings state that the approach is based *game* learning can stimulate students' intellectual so as to improve students' understanding for the better (Ibam et al., 2018; Wardani et al., 2017). Other findings also state that games are an activity that students really like so that game-based learning can help teachers significantly increase students' understanding and motivation in learning. (Prahmana et al., 2012; Zaki et al., 2020; Zou et al., 2019). On the other hand, a finding also states that *game learning* also able to significantly increase student activity in the learning process (Hung et al., 2014; Krath et al., 2021)

The characteristics of games that can stimulate students to learn in a fun way will make learning more preferable. In addition, games can also be used as alternative media that can be used to teach skills to students. (Harjanta & Herlambang, 2018; Su & Cheng, 2013). Another finding in a research also states that the use of teaching media that suits the characteristics of the students will have an influence on the students' psychology. This will affect the level of the student's understanding process to be higher (Rahayu et al., 2019; Ristanto et al., 2020)

The ladder snake game is a game that uses dice to determine the steps to walk on a board, there are small boxes connected to the ladder snake that indicate going up through the ladder or going down when the footing is on a square with a snake so it is interesting to do together-same (Safitri, 2019). The concept of this game was developed in learning media with an attractive design equipped with dice, pieces and 3 types of cards. An update on the design with the theme of the Milky Way galaxy with colorful tiles, there is a picture of a rocket replacing a ladder for students who answer the questions correctly will proceed to the next number according to the teacher's instructions. rocket. Bonus points are found in different colored squares and students are able to answer questions. The three types consist of question cards, answer confirmation cards with the same card number, and penalty cards for students who answer incorrectly or do not answer correctly. On the penalty card there is no deduction of points because the game rewards students for their efforts to answer questions correctly.

The urgency of developing board game media is the development of a curriculum that requires students to be active in learning activities and construct their own knowledge. In addition, the elimination of the minimum completeness criteria (KKM) makes students less motivated in improving their cognitive abilities, so a trigger is needed to attract students' interest in the learning process. So far, peer tutor activities have only been used for group activities, used for preparation of presentation activities so it is less fun with the Milky Way Project Galaxy game. This project allows students to carry out peer tutoring activities for the group goal of becoming winners in game activities. This game is also motivated by the existence of a school that prohibits students from bringing and using cellphones during learning so print out media is needed. The media that has been developed is implemented in learning in Junior High School with material on the respiratory system. So this research was conducted to see whether there was an influence of the board game learning media developed on student learning outcomes.

## RESEARCH METHOD

This research is a classroom action research (experimental) using quantitative descriptive data analysis with the help of the One-Group Pre-test post-test design. The pre-test and posttest question instruments at sub-matter 1 and 2 meetings totaled 10 questions. The following is the research design.

Table 1. One Group Pretest-Posttest Design

Pre-Test	Treatment	Post-Test
O1	X	O2

Information:

- O1 = Assessment before treatment / use of media
- O2 = Assessment after treatment / use of media
- X = Implementation of media in learning

The research was carried out in the even semester of the 2022/2023 school year at Public Junior High School 2 Kendit Situbondo district on May 30 2023 to June 1 2023 with a background of the large number of students who were less enthusiastic about participating in learning, especially at the end of learning time at school, resulting in frequent results low learner learning less than KKM.

The subjects in this study were students of class VIII Junior High School Negeri 2 Kendit with a sample of class VIIIB with a total of 29 students. Determination of the sample in this study by considering the learning schedule, in which Class VIIIB has a schedule at the end of learning at school so that it can be seen the influence of the media on student motivation and interest in learning

The research procedure started from the preparatory stage, namely direct class observation activities on previous material activities, as well as conducting interviews with the class teacher concerned regarding the problems that existed during learning. The next step is to determine the

formulation of the problem and the goals for overcoming the learning problem. Then determine the strategy that fits the purpose, in this case the selection of media or learning models. Then look for sources related to media that will be selected in groups or individually, in this case paying attention to the benefits of peer tutors in group activities. Selection of the basic concept of board game design. The next step is to make a board game development design from the concepts found, and arrange game components and rules. Then design learning activities and assessment instruments. In carrying out the activities, pretest activities were carried out at the beginning of learning and posttest activities after learning using the media, during learning activities learning documentation was also carried out. At the end of the lesson, reflection and evaluation are carried out. After the learning activities have been completed, data analysis is carried out, then results and discussion are made and conclusions are drawn.

The main instruments used in this study included observation sheets of students' needs through observations during learning, lesson schedules, and interview sheets with subject teachers related to learning. The observation sheet contains observations of students' learning interests during learning activities, this is also done at different times, namely at the beginning of school learning hours and at the end of school learning according to the lesson schedule. In addition, interviews with subject teachers included the results of student scores, the learning strategies used by the teacher included media that was often used and differences in the conduciveness of learning during the first and last lesson hours. The cognitive assessment on the pretest and posttest questions contains 10 questions which all belong to the realm of C4 (analyze) based on the basic competencies to be achieved. The affective assessment is obtained from the attitude observation sheet which includes the activity of students in game activities and peer tutors. As well as the results of reflection and evaluation for improvements related to learning carried out by students themselves by writing feelings, criticisms and suggestions on sticky notes related to learning activities that have taken place and then pasting them on the blackboard. The supporting instrument in this study was the Student Worksheet as a means for group discussion activities.

In this study using data analysis techniques using the help of statistical tests IBM SPSS 25. As for the first thing to do is to test the data obtained whether normal or not. After the normality test, if the data is declared normal then parametric analysis is used, namely the paired sample test, but if the data is not normally distributed, then a non-parametric test is performed, namely the Wilcoxon test. Following the decision-making guidelines.

H0: "There is no significant effect of the application of board game media on student learning outcomes"

H1: "There is a significant effect of the application of board game media on learning outcomes."

Guidelines for decision making as follows: If the value is significant. (2-tailed) is less than 0.05, meaning that H0 is rejected and H1 is approved, it is stated that there is a significant influence between the scores of student learning outcomes before and after treatment in learning using board games.

## **RESULTS AND DISCUSSION**

Data collection activities were carried out for 2 meetings using different sub-materials. Students are very happy in learning activities using board games, this is the first time students work on problems through games in groups. The interest in student learning is shown through expressions when participating in learning activities using board games, besides that students are very active in answering questions and peer tutoring activities. Following are the results of data analysis on the pretest and post-test activities for 2 meetings using the non-parametric test, namely the Wilcoxon test, this is because the data obtained is not normally distributed.

Table 1. Results of the analysis using the non-parametric test - Wilcoxon test

Z.	-4.769b
asympt. Sig. (2-tailed)	.000

Based on the results of the SPSS data using the Wilcoxon test, a significance data of 0.000 is obtained, of course this value is less than 0.05 so that it is in accordance with the guidelines, namely if the significance value is less than 0.05 then H0 rejected and H1 accepted. This shows that there is an

influence of board game media on learning. As for the research, it was also obtained on average at 2 meetings, along with the class average data obtained from the pretest and post test activities on both materials presented in the following figure 1.

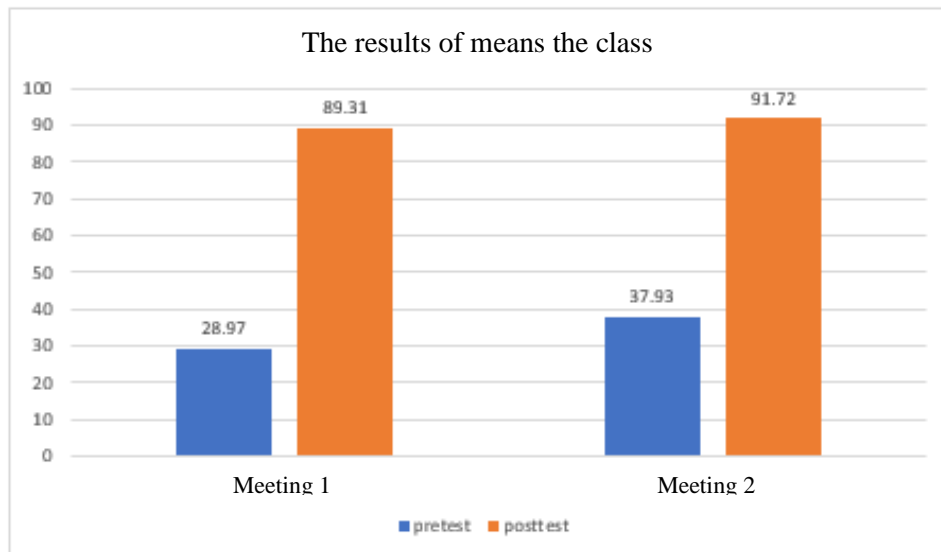


Figure 1 The average results of pretest and posttest activity classes

Based on the picture above, it shows that at the first meeting the pretest activity obtained the highest score obtained was 60, while in the posttest activity the lowest score obtained by students was 70 obtained by 1 person. Whereas at the 2nd meeting the highest posttest score was 60 and the lowest score in the post test activity was 80. The Minimum Criteria Score determined by the school was 75. Thus, it can be seen that students experienced an increase in good grades at meeting of sub material 1 or 2. As for the comparison between meeting 1 and 2 post-test activities, this increased because at meeting 2 the students were better prepared to take part in learning and already knew game techniques clearly.

In the figure it is known that at the sub-matter 1 meeting the pretest class average was 28.97, and the posttest class average was 89.31, so the difference between pretest and posttest was 60.34. In the second sub-material learning, the class average in pretest activities was 37.93, and the posttest class average was 91.72 so that a difference of 53.79 was obtained. Based on these results, an increase in class average was obtained, namely at the first sub-material meeting using Board Game media by 67%, while at the second sub-material meeting there was an increase in pretest and posttest by 58.6%. As for the posttest activities of the two meetings, there was an increase of 0.02% with a difference of 2.41. This shows that the media used shows an increase in learning outcomes both in the same sub-material through pretest and posttest activities as well as in different sub-materials, namely increasing posttest results in sub-matter 1 and 2. This also shows that the Galaxy Bimasakti Project media is capable of increase interest in learning that has an impact on student learning outcomes. This is in accordance with the results of research conducted by Widiana (2022) which states that the application of game-based media can increase students' learning interest and understanding of students' concepts.

Apart from that, the Bimasakti Project media can make students enthusiastic and active in activities and work together (attitude assessment) to get high group points through peer guidance activities. As for the liveliness and enjoyment of students, it can be seen from the expressions and activities of peer tutors. It can be seen that peer tutors can increase the activeness of students in learning and increase the independence of students studying in groups so that they can construct their own knowledge as a group being studied. This is in accordance with research conducted by Malik (2017) which shows the results that the peer tutoring method can increase student learning participation, this is due to a modification of the actions taken, namely the task of the tutor is to condition its members to stay focused.

In addition, at the end of the lesson there is reflection and evaluation of learning by students by sticking sticky notes on the blackboard, which contain related impressions when participating in learning using game media. The results of reflection and evaluation show that students are very happy in participating in learning using board games. The limitations of this study are that product differentiation has not been implemented in learning activities so that skills are still limited to assignments. However, the Bimasakti Project can be used in every subject by adjusting the questions to each subject with the same rules and conditions.

## CONCLUSION

Based on the results of a series of research and data processing the Milky Way Galaxy board game media project was able to increase students' interest in learning and have an impact on high learning outcomes. The concept obtained is that high learning outcomes depend on students' learning interests so as to trigger student learning motivation. In addition, peer tutoring activities through brainstorming make students able to communicate, work together and take responsibility. The new concept obtained is the learning experience with peers that makes students more comfortable in expressing ideas.

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