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The Impact of Using Monopoly Game as Learning Media to Increase Motivation on Earth and Solar System Materials

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Abstract

Several studies had found that teachers meet difficulties in helping students understanding the concept of solar system because the lack of engagement in learning process. This study aims to increase students' learning motivation with the help of monopoly learning media. This research is Classroom Action Research (CAR) using the Kemmis & Mc Taggart model. The subjects of this study were 22 class VII-4 students at SMPN 1 Gapura. The research instrument used was a learning motivation questionnaire. The study results show that student's motivation to learn has increased after participating in learning with the help of monopoly learning media. In the pre-cycle, the average level of learning motivation was 69%; in cycle 1, it was 81%, and in cycle 2, it was 85%. The study's results also show that each Indicator's learning motivation level increases in each cycle. Therefore, the application of monopoly learning media can be an alternative to increase student learning motivation because the application of monopoly media has proven to be effective in increasing student learning motivation.

Introduction

Fostering motivation is an important factor in education that significantly affects student learning outcomes. Learning motivation, the drive that stimulates and sustains students' involvement in educational activities, plays an important role in the absorption and retention of knowledge[1]. However, traditional teaching methods, especially when dealing with complex subjects such as Earth and Solar System matter, often fail to attract students' interest, leading to decreased motivation and lower academic performance.

Learning motivation has a very important role in encouraging the spirit of learning, so that students can have much energy to participate in learning process activities [2]. Learning motivation has six indicators. The indicators of learning motivation are (1) the existence of desire and desire to succeed; (2) the existence of encouragement and need in learning; (3) the existence of hopes and ideals for the future; (4) there is an appreciation in learning; (5) the existence of interesting activities in learning; (6) the existence of a conducive learning situation, so that students can learn well.

Students' learning motivation must be improved in science learning. The field of study of Natural Sciences for students at the junior high school level was developed as an integrative science [3]. Therefore, science learning is one of the areas of knowledge that develops cognitive, affective, and psychomotor aspects. One of the factors that can affect students' learning motivation and learning quality is learning media. A teacher must be creative in presenting learning and using learning media. Teachers must be able to utilize various learning media to create fun learning and provide comfort in the learning environment to maximize the absorption of information during the learning process [4]. Learning media is a learning tool and an intermediary that conveys learning materials to achieve the desired goals effectively [5]. Learning media has six main functions. The six functions are the attention function, the motivation function, the affective function, the complementary function, the psychomotor function, and the evaluation function [6]. Educators have explored innovative teaching strategies to address these challenges that can improve student engagement and motivation. Previous research[7] explained that one of the approaches used is educational games, which combine learning objectives with elements of fun and competition. Among them is Monopoly, a popular board game adapted as a learning medium to make the educational process more interactive and fun.
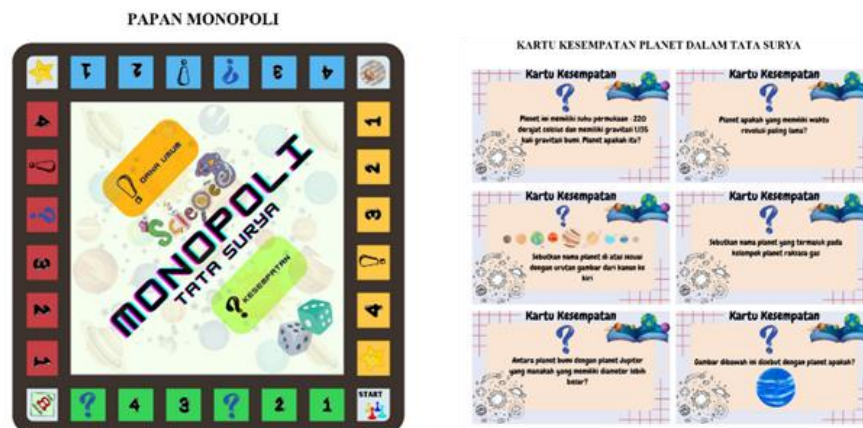

Figure 1. Monopoly Game about the Eart and Solar System

Despite the rise of game-based media, parallel research[8]examining the use of Monopoly as a learning tool is based on gamification principles, which involve applying game design elements in non-game contexts to encourage participation and motivation. Educators aim to create a more dynamic learning environment where students are actively involved in their learning process by integrating the game of Monopoly into lessons about Earth and the Solar System. This approach not only makes the subject matter more accessible but also fosters curiosity and excitement among students.

Therefore, this study explores the impact of using Monopoly game as a medium in learning the Earth and the Solar System. It investigates how games' interactive and competitive elements can improve student engagement, making the learning experience more effective and enjoyable. This research will study the potential of Monopoly game as a tool to increase learning motivation in science education and implicates to contribute broader discourse on innovative teaching methodologies.

Science monopoly learning media can be an alternative in the learning process of solar system material so that it can facilitate students, especially for students who are weak in the field of memorization. This is because when the monopoly game process takes place, students will be directly involved in forming their knowledge and students will be motivated to actively read in finding answers to questions or challenges that are obtained quickly and precisely. Therefore, this study aims to determine the effect of using monopoly learning media on students' learning motivation on solar system material.

Research Methods

A.   Research Type

This research is called classroom action research (CAR) or classroom action. Classroom Action Research is a form of scientific writing from research conducted by educators or teachers[9]. The research conducted raises the actual problems experienced by teachers directly in the field during the learning process. Classroom action research aims to solve learning problems that occur in the classroom systematically by using applicable scientific principles.

Classroom action research was carried out in 2 cycles using the Kemmis & Mc Taggart model. The Kemmis & McTaggart model has four stages [10]. The stages are planning, action, observation, and reflection[11]. The following are the stages of the Kemmis & Mc Taggart model class action research:
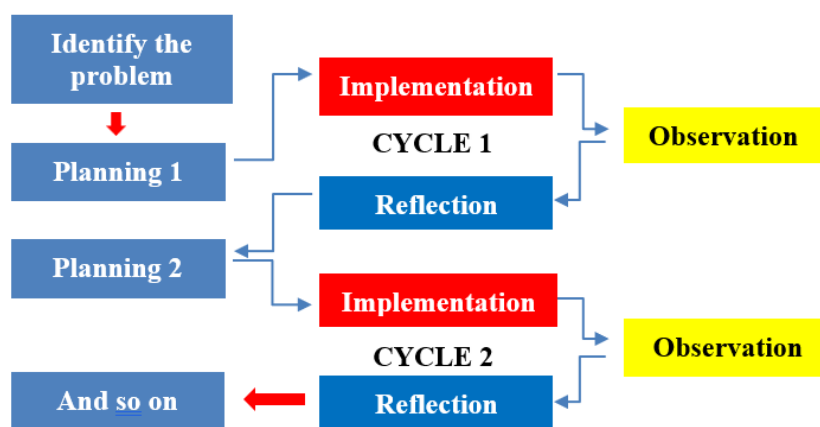

Figure 2. Stages of Action Research of the Kemmis & Mc Taggart Model

B.   Research Sample

The subjects in this study are students in grades VII-4 at SMPN 1 Gapura, totaling 22 people. The data collection technique used is non-test in providing learning motivation questionnaires to students. The learning motivation questionnaire was compiled based on six indicators of learning motivation and consisted of 22 positive statements and three negative statements.

C.   Data Analysis Technique

The data analysis technique uses a percentage formula to determine the level of student's motivation to learn. The formula for the percentage of learning motivation level is presented in the following formula:

$$M = \frac{\sum x}{N} \times 100\%$$

(1)

Information:

M = Percentage of Learning Motivation

$\sum x$ = Scores obtained

N = Maximum Score

After the results of the percentage of learning motivation are obtained, the criteria for the level of student learning motivation are determined according to the percentage obtained. The criteria for the level of student learning motivation can be seen in Table 1.

Table 1. Criteria for Students' Learning Motivation

Percentage (%)	Criteria
$75 < v \leq 100$	Hight
$45 < v \leq 75$	Medium
$0 \leq v \leq 45$	Low

Research Results

The data from the questionnaire results of the student's learning motivation questionnaire before and after the implementation of the monopoly game can be seen in Table 2 below:

Table 2. Data on the Level of Learning Motivation of Students

No	Identity of Learners	Motivation Level (%)		
		Pre-Cycle	Cycle 1	Cycle 2
1	S1	65	76	79
2	S2	54	73	75
3	S3	71	80	86
4	S4	71	81	85
5	S5	70	81	82
6	S6	71	83	85
7	S7	69	75	77
8	S8	69	86	92
9	S9	71	85	87
10	S10	74	86	92
11	S11	69	80	88
12	S12	76	90	92
13	S13	68	79	81
14	S14	68	76	89
15	S15	62	72	77
16	S16	69	76	81
17	S17	62	85	85
18	S18	65	67	87
19	S19	71	87	91
20	S20	77	90	91
21	S21	73	84	93
22	S22	65	85	80
	Average	69	81	85

Based on table 2 above shows that after learning with the help of Monopoly games, the average level of learning motivation in each cycle has increased. In the pre-cycle, the average is 69%; in cycle 1, the average is 81%; and in cycle 2, the average is 85%. At the pre-cycle time, the learning motivation of all students was at a moderate level. At the time of cycle 1, the overall level of learning motivation of students increased compared to pre-cycle, where most students had a high level of learning motivation, and there were only four students who still had a moderate level of learning motivation. Meanwhile, during cycle two as a whole, students' learning motivation increased compared to cycle 1, where the learning motivation of all students in cycle 2 was in the high category. This is because, in cycle 2, teachers have improved the shortcomings in cycle 1.

In the implementation of cycle one learning, there are still indicators that do not go well because some students still need help understanding how to play Monopoly and are still not used to finding answers on time according to the time determined by the teacher. In addition, the cooperation of each group still needs to improve, so some students still need to be more active in learning. Therefore, during the learning process and games, the teacher always directs students so that students better understand the learning flow. The teacher also ensures that all group members are actively discussing so that all groups can work well together. The implementation of cycle two learning has gone better than cycle one because the teacher has improved the results of reflection that occurred in cycle 1. In contrast, in the implementation of cycle 2 learning, students are more active in the learning process, and the competitive spirit of each group is higher.

The data above shows that applying the science monopoly game during the learning process is proven to increase the learning motivation of students in grades VII-4 at SMPN 1 Gapura. Monopoly game-based learning media [12]is one way for students to be interested in participating in learning. Students' motivation to learn will increase because, at the junior high school level, students are still happy to play.

The data on the level of learning motivation of students for each Indicator before and after the implementation of the Monopoly game can be seen in the following Table 3:

Table 3. Students' Learning Motivation Level for Each Indicator

Learning Motivation Indicators	Learning Motivation Level (%)		
	Pre-Cycle	Cycle 1	Cycle 2
The desire and desire to carry out activities	62	83	88
There is an encouragement and a need to carry out activities	61	76	83
There are hopes and ideals	72	82	84
Appreciation and respect for oneself	72	79	83
The existence of a conducive environment	74	83	86
There are good and interesting activities	70	82	87

Based on Table 3 above, learning with the help of Monopoly games shows that the percentage of learning motivation for each Indicator has also increased. The most significant increase occurred in the indicators of desire and desire to carry out activities, where from pre-cycle to Cycle 1 increased by 21% and from Cycle 1 to

Cycle 2 increased by 5%. The not-so-significant increase occurred in the indicators of appreciation and respect for self, where from pre-cycle to cycle 1, it increased by 7%, and from cycle 1 to cycle 2, it increased by 4%. The results of this questionnaire analysis align with the observations made during the learning process, where when learning is carried out by playing Monopoly, the enthusiasm and desire of students to participate in learning actively is higher. Students will pay careful attention to the explanation of the material delivered by the teacher so that they can answer questions when playing Monopoly. However, when students cannot answer the questions, they get when playing Monopoly, some students will not care about the points they get.

Likewise, with other indicators, each Indicator's learning motivation percentage is also relevant to the results of observations made during the learning process. In the Indicator of encouragement and the need to carry out activities, students show their activeness in the learning process and, during learning, always respond to the triggering questions given by the teacher. In the indicators of expectations and ideals, students persevere in group discussions and reading the material when the teacher allows them to learn it before playing Monopoly. In the Indicator of a conducive environment, students show comfort when learning is packaged in games. The indicator has good and interesting activities; students show their interest and enthusiasm in defending the ranks.

The results of this study are the opinion which stated that monopoly media has a positive impact on the learning process, where students will feel enthusiastic, more excited, and comfortable while participating in the learning process so that when the learning process takes place, students will not feel bored [13]. Another opinion that supports the results of this study is the research of[14], which states that Monopoly games can make learning activities interesting and make the learning atmosphere fun so that student's motivation to learn will increase. Therefore, monopoly learning media has effectively increased students' motivation to learn [15].

Conclusion

This article discusses the use of Monopoly games as learning media to increase student learning motivation on Solar System material. Previous research [7] explained that one of the approaches used is educational games, which combine learning objectives with elements of fun and competition. Among them is Monopoly, a popular board game adapted as a learning medium to make the educational process more interactive and fun. Despite the rise of game-based media, parallel research[8]examining the use of Monopoly as a learning tool is based on gamification principles, which involve applying game design elements in non-game contexts to encourage participation and motivation. This research was conducted using the Classroom Action Research (CAR) method with the Kemmis & McTaggart model consisting of two cycles. The research subjects were 22 students of class VII-4 at SMPN 1 Gapura. The results showed that students' learning motivation increased significantly after learning using Monopoly game media. In the pre-cycle, the average student learning motivation was 69%, increased to 81% in cycle 1, and reached 85% in cycle 2. Each indicator of learning motivation also showed an increase in each cycle. This increase in motivation was indicated by

students who were more active in the learning process and more eager to follow the lesson. Therefore, the use of Monopoly game is proven to be effective as a learning media to increase students' learning motivation, especially on Solar System material in science subjects.

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Author Contributions

Tri Murtiyani: conceptualization; formal analysis; data curation; methodology and review. Mughnil Muhtaj: data curation; methodology; writing-reviewing and editing. Nadhira Fasya Salsabila: formal analysis; and methodology. Wirayoga Abdillah Kurnianto: formal analysis; writing-reviewing and editing. Yudi Kurniawan: formal analysis; writing-reviewing and editing. Siti Mualiyah: data analysis; writing-reviewing.

Availability of data and materials

All data are available from the authors.

Competing interests

The authors declare no competing interest.

Additional information

No additional information from the authors.

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