The Effectiveness o`f Monopoly Learning Media Based On Scientific Literacy With Vision SETS on Student Learning Outcomes

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Abstract

This study aims to determine the level of effectiveness of monopoly learning media based on scientific literacy with SETS vision on learning outcomes in solar system material. This type of research is quasi-experimental with a pretest-posttest control group research design. Sampling used a purposive sampling technique which resulted in class VII E as the experimental class and VII D as the control class. The research instruments were in the form of pretest-posttest questions, observation sheets, questionnaires and documentation. Data analysis used SPSS version 22. The results of this study were that monopoly learning media based on scientific literacy with SETS vision was effective in improving students' collaboration skills by obtaining classical completeness of 83.33% and an N-Gain Score of 0.78 in the effective category.

Keywords: Effectiveness; Learning Outcomes; Monopoly; SETS.

1   INTRODUCTION

The American Council on the Teaching of Foreign Languages (ACTFL) establishes World Readiness Standards which highlight literacy, real-world applications and 21st century skills that can enhance students' competencies to establish effective communication in local and global communities (Maimunah et al., 2022). The 21st century skills are 6C are crucial in forming students' character.. Humans as social beings cannot live alone, so collaboration skills need to be emphasized in the educational process (Octaviana et al., 2022). 21st century learning directs teachers to provide a problem to students and students solve it by collaborating (Pratiwi et al., 2019). Through collaborating students increase social interaction to achieve learning goals. This makes collaboration important to teach in the world of education to produce graduates with character (Prayogi & Estetika, 2019)

In 2018 The Organization for Economic Co-operation and Development (OECD) released the results of The Program for International Student Assessment (PISA) where for the category of reading Indonesia ranks 74th out of 79 and ranks 71st out of 73 countries for the category of math and science abilities (Suprayitno, 2019). Students' low scientific literacy skills are affected by learning processes that do not apply scientific processes and use natural science learning resources that are not related to the environment and daily life (Nasibah et al., 2021). Haviz and Maris (2020) state that students' scientific literacy abilities are when students can implement ideas, knowledge and information obtained from natural phenomena. Learning must be linked to everyday life as an effort to increase students' scientific literacy. One of them uses the Science Environment Technology and Society (SETS) approach.

SETS visionary learning is using science skills in technology to meet community needs and determine their impact on the environment. SETS learning objectives are determined by the teacher and students where the teacher directs students to have a critical, long-term and integrative mindset and always see the impact with reference to SETS so as to produce quality graduates (Saputra, 2022). According to Atmojo (2016) of the many advantages of SETS, there are many obstacles in its application, such as requiring more time than other models, demanding a teacher who is broad-minded and competent and responsive to environmental difficulties, making it difficult for teachers to relate environmental problems to the topics presented or studied. These constraints can be anticipated with learning media.

Learning media is a device that functions to facilitate the learning process and aims to disseminate knowledge to students from various sources (Herawati Daulae, 2019). Monopoly is one type of media that can be used in the educational process. Monopoly as a medium that can create a positive

learning environment and construct knowledge and skills that are built based on student thinking as an alternative to solving certain problems by finding solutions and solving problems directly together (Kurniawati, 2021). Monopoly media can make learning interesting and fun. By collaborating to solve problems, students can actively engage in their education through the use of monopoly media.

Collaboration skills are very important to apply in learning because they facilitate student learning and achieve learning goals and with collaboration students get a lot of information (Ulhusna et al., 2020). In collaborating, participants are challenged to express themselves and generate ideas based on data. The use of instructional media is useful in developing collaboration skills and individual and group knowledge.Therefore, it is imperative that the media be used in the educational process so that students can learn how to collaborate. Collaboration skills can be improved using learning media, one of which is in science subjects. Monopoly learning media in science learning is expected to improve students' collaboration skills. Science learning is important knowledge for students to learn nowadays because it is very useful in everyday life (Pratiwi et al., 2019).

Based on preliminary findings from Tegal City Junior High School observations and interview methods with science teachers, it was revealed that many students were passive during the learning process so that it became an obstacle in the learning process. The cause of student inactivity is because the teaching strategies used by the teacher do not give students the opportunity to participate actively. The lack of use of learning media by teachers when delivering material is another factor that makes students inactive and prevents them from understanding the material. Collaboration abilities and student learning results are improved when students participate actively in the learning process (Evayani, 2020).

Based on the findings of the observations, learning media are needed that encourage student involvement so that students are active in the learning process. Monopoly learning media based on scientific literacy with the SETS vision is one of the media that can be employed. Monopoly based on scientific literacy with the SETS vision is a monopoly media whose components contain students' scientific abilities to apply the knowledge obtained in identifying problems, obtaining new knowledge, explaining scientific phenomena, and drawing conclusions using scientific evidence. Its use is linked to SETS elements in order to encourage students to actively participate in the learning process and use the knowledge they acquire in everyday life. Research on "The Effectiveness Of Monopoly Learning Media Based On Scientific Literacy With Vision SETS On Student Learning Outcomes" is required in light of the difficulties described above.

2 METHODOLOGY

This research was conducted at SMP Negeri 3 Tegal City. This type of research is a quasi-experimental type. The population of this study was 148 students of class VII SMP Negeri 3 Tegal City for the 2022/2023 academic year. By paying attention to certain factors, the sampling technique uses purposive sampling (Susongko, 2016). 30 students from class VII E (experimental class) and 30 students from class VII D (control class) were sampled for this study. The design of this research is pretest-posttest control group design.

***Table 1.** Prestest Posttest Control Group Design*

Group	Pre-test	Independent variable	Post-test
Experiment	Yb	X1	Ya
Control	Yb	X2	Ya

(Susongko, 2016)

The introduction of pretest questions in each class signifies the beginning of the application of learning. The learning process was then carried out in the experimental class using monopoly learning media with SETS vision, whereas the control class used worksheets based on scientific literacy. To gauge the improvement in learning outcomes, posttest questions are presented to students at the conclusion of the learning process. The level of effectiveness of monopoly learning media was then evaluated based on the pretest and posttest outcomes for scientific literacy.

3 RESULTS

This study used the N-Gain Score test and classical mastery analysis to determine the effectiveness of monopoly learning media based on SETS vision of scientific literacy in improving student learning outcomes on the solar system. The results of the N-Gain Score test can be seen in table 2.

Table 2. N-Gain Score Test Results

	Experiment	**Control**
Mean	.78	.62
Minimum	.44	.41
Maximum	1	.83

Based on the N-Gain Score test results diagram in the experimental class obtained an average value of 0.78 so that the use of scientific literacy-based monopoly media with SETS vision in the experimental class was considered "effective" in improving student learning outcomes. On the other hand the control class obtained an average of 0.62 so it was classified as "fairly effective". This shows that the use of SETS vision-based monopoly learning media is better than without using SETS vision-based monopoly learning media.

This increase in learning outcomes is due to the use of monopoly learning media based on scientific literacy with the SETS vision. Juhardi & Amirullah (2022) stated that an increase in learning outcomes is the result of the active use of learning media by students because learning media can encourage student discussion and participation in the learning process. This is in line with Dewi's research (2020) that learning science with the SETS vision is a very fun group learning model and has a positive effect on students' attitudes towards science and improves student learning outcomes in science.

The N-gain results of the control class were in the quite effective category because the students' initial abilities were good but not accompanied by enthusiasm and activeness of students in teaching and learning activities. When the teacher speaks in class some students do not pay attention and many others do not participate in the discussion. As a result, students do not reach their full potential in cognitive learning outcomes. This is in line with Siwi Puji Astuti's research (2015) that in terms of knowledge, abilities, and attitudes in physics subjects, the higher the initial ability followed by the high motivation in learning, the higher the physics learning achievement. This statement is corroborated by Wati's opinion (2020) which states that the responsibility of the teacher is to maximize students' talents so that children develop effectively. So that students do not have difficulty learning new material and become bored during teaching and learning activities, the teacher must be able to act as a student facilitator.

Table 3. Result of Classical Completeness Analysis

	Score	**amount**	**percentage**	**information**
Experiment	≥ 75	25	83,33	complete
Control	≥ 75	20	66,67	complete

Mulyasa (2022) states that a class is considered to have achieved classical mastery if at least 80% of students have achieved a minimum mastery score. The classical completeness of the experimental class was 83.33% in the high category while the classical completeness in the control class was 66.67% in the low category. Differences in classical completeness results are influenced by several factors, one of which is the absorption of students and the stimulus provided by the teacher. The different absorption abilities of students and the lack of optimal stimulus provided by the teacher causes students to become incomplete in learning a material (Dewi et al., 2020).

In terms of student learning outcomes, the experimental class is better than the control class. The experimental class uses scientific literacy-based monopoly learning media with SETS vision, while the control class uses scientific literacy-based worksheets that have an impact on this. In the experimental class students became active participants and interested in the learning process as a result of using monopoly learning media based on scientific literacy with the SETS vision which had an impact on student learning outcomes.

According to Astiti, Kristiantari and Saputra (2021) that the use of media and methods in making students become enthusiastic in learning, because these learning media and teaching methods can be used to arouse student interest and motivate students to learn by stimulating students' thoughts, feelings and attention. The use of science monopoly media in science learning both conceptually and experimentally can boost student activity and learning outcomes (Arifah & Widiyanti, 2023). Learning is more meaningful and encourages student participation when it is student-centered. With monopoly learning media, learning is more interesting, fun and more effective. Conceptual understanding of the subject matter will be strong if the learning response is strong.

4   CONCLUSIONS

Based on the results of data analysis and discussion, it can be concluded that monopoly learning media based on scientific literacy with SETS vision is included in the effective category with an N-Gain Score of 0.78 and classical completeness of 83.33%.

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