Implementation Spin Game Science Smart on the Topic of Vibration to Upgrade Student Motivation And Learning Outcomes

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Abstract

The history of the world of education began to occur in 2020 when learning activities were carried out online. This situation has a major impact on the implementation of learning, especially in the use of learning media. The purpose of this study was to determine the level of student learning motivation when learning online using SGSS media and without SGSS media in the pandemic era and to find out the differences in student learning outcomes using SGSS media and without SGSS media in online learning. Data collection techniques using test techniques, interviews, documentation and questionnaires. Data were analyzed by descriptive analysis and independent sample t test. The results average value motivation experimental class was 83.64 in the very good category while the control class was 79.53 in the good category and the results of the independent sample t test showed a sig (2-tailed) value of 0.457 or greater from 0.05 so that it can be concluded that student learning outcomes between using SGGS media and without SGSS media don't provide a significant difference. The use of SGSS media needs to be followed up both online and offline.

Keywords: *SGSS media, vibration and waves, learning motivation, learning outcomes, pandemic era*

INTRODUCTION

The world health organization has declared the corona virus as a pandemic in 2020, making it a historic year, especially in the world of education. In Indonesia itself, the Minister of Education and Culture gave an appeal regarding the implementation of learning in all educational units that must be done online, this is to overcome the outbreak that occurred (Djumiko, 2020). This decision certainly has a big impact on the learning process, especially the use of effective learning media so that it will not affect the quality of education even though it is done online.

Improving the quality of education is influenced by several components of education including teachers or teachers, students, learning methods and strategies, and learning media. Learning media is a tool used in the teaching and learning process so as to encourage students to carry out activities through stimulating thoughts, feelings and abilities of students. One of the interesting media choices used is in the form of games (Subakti, 2020).

Triastuti, Akbar, & Irawan (2017)in his research stated that students have not been fully involved actively in the use of learning media. Students are classified as only acting as observers and listeners so that they are passive without being directly involved in the use of media. This causes students to tend to be less interested in the media used, because the media is not yet interactive.

SGSS media is a game like a spinning wheel that is changed according to its function to serve as a learning medium. In Hamzah, Utami, & Zulkarnain's research (2019) entitled the development of physics rotary wheel learning media to increase students' learning motivation, there are suggestions regarding improvements in terms of appearance and technical quality. The author has an idea to develop it into an SGSS media that can be taught online in the pandemic era. Media Spin Game Science Smart (SGSS) is a learning media that is easy to play and relatively popular with children and is suitable for the character of junior high school students who still tend to like to play.

Game learning media has advantages, namely: 1) the game is a fun thing and becomes an interesting and entertaining thing. 2) the game allows student participation to be active so that students are enthusiastic about learning. 3) the game provides immediate feedback by solving real problems. 4) the game can provide a real experience and can be repeated as many times as desired and allows operational errors to be corrected. 5) help students' communication skills to increase (Arsyad, 2013). The use of the smart science spin game is expected to help increase learning achievement due to the increased intensity of learning efforts and the growth of learning motivation.

Motivation is a series of attempts to provide certain conditions that make a person want and ultimately want to do something, but if he doesn't like it, he will try to avoid or give a dislike response (Sardiman, 2018). Motivation can be stimulated through external factors but in essence motivation grows within a person. There are several ways to stimulate learning motivation, including giving rewards, providing a conducive environment, and interesting learning activities. In learning activities, motivation is the driving force in students who encourage and ensure the continuity of the learning process, so that the goals desired by the learning subjects can be achieved.

Hayati (2022) stated that many researchers generally reflect teaching and learning issues as if independent from physical environment, whereas physical conditions of teaching material play an important role in gaining knowledge. One solution that can be considered is the Spin Game Science Smart (SGSS) media which is expected to be used as a learning medium in schools to improve learning mastery. Mediaspin game science

smartcan be used in learning to facilitate the level of understanding of students and make learning interesting.

Therefore, research was conducted on the Spin Game Science Smart (SGSS) media on vibration and wave material on student motivation and learning outcomes in the pandemic era. The purpose of this study was to determine the level of student learning motivation when learning online using SGSS media and without SGSS media in the pandemic era and knowing the differences in student learning outcomes using SGSS media and without SGSS media in online learning.

RESEARCH METHODS

This research includes a quasi-experimental study with an unequal pretest posttest design. In this design there is still no use of randomization or random. Subject selection was carried out using classes that were already available as a group. In this design, each class was given a pretest and then given treatment, namely the experimental class was taught using the Spin Game Science Smart (SGSS) media while the control class was taught without using the Spin Game Science Smart (SGSS) media and at the end of the lesson was given a posttest (Susongko, 2016).

The population of this research is VIII grade students at SMP N 14 Tegal for the 2020/2021 academic year as many as 239 students. While the sample of this research is class VIII G and VIII H SMP N 14 Tegal as many as 59 students. The sampling technique is purposive sampling. Instrument validation using the SPSS 21 application. Data collection techniques in this study were test, interview, documentation and questionnaire techniques. Test technique is used to measure student achievement through pretest and posttest. The interview technique was used to determine the initial conditions before the lesson was addressed to the science

teachers in grades VIII G and VIII H. The type of interview used was unstructured interviews. In this interview the emphasis is placed on the mind of the interviewee (Susongko, 2016).

Data were analyzed by descriptive analysis and independent sample t test. The independent sample t test was used to determine whether the two sample groups had a significant difference in average or not. To see the significance of the difference in the posttest between the experimental class and the control class, a normality test was conducted before testing the difference between the posttest experimental class and the control class.(Fatkhurrohman & Astuti, 2017)

RESULT AND DISCUSSION

The data analysis technique in this study uses the SPSS version 21 application. The results of this study include the results of the analysis of the description of the learning motivation questionnaire and the results of the independent sample t-test. Descriptive analysis of the motivation questionnaire was used to determine the average level of student motivation. The average value of student learning motivation can be seen in Figure 1.

Based on Figure 1, the percentage value of the experimental class students' learning motivation is 83.64 in the very good category while the control class is 79.53 in the good category. The difference in the category of motivation levels that occur in students is due to the use of Spin Game Science Smart (SGSS) media. Media Spin Game Science Smart (SGSS) is able to increase students' interest in learning. This is reinforced by the research of Sari and Supardi (2013) which states that the use of the tournament question card media provides a new atmosphere that makes students interested in participating in learning so as to increase interest in learning and show more effective learning outcomes. Another

study from Park & Kim (2021) stated the effectiveness of games and some quiz elements such as points, levels or gift can encourage student partisipation.
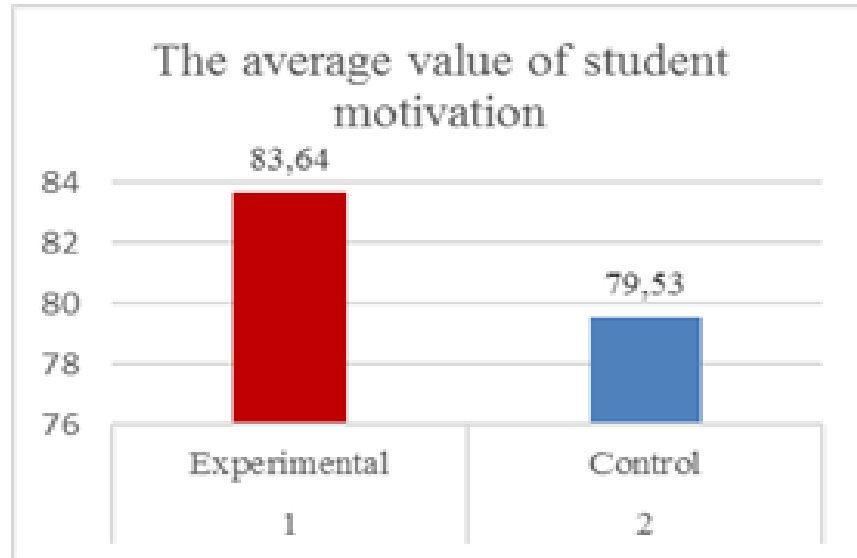

Figure 1. The average percentage of students' learning motivation in the experimental class and the control class

In addition, the addition of game learning media in the learning process is also able to invite students to play while learning so as to make students feel happy. This is in line with Supardi's research (2010) which states that learning while playing in class is intended to avoid or eliminate boredom, boredom, and students' feeling of sleepiness during the learning process. According to Hayati, Supardi & Miswadi (2014) almost most students like learning with innovation, especially those that prioritize the activeness and involvement of students.

This study includes 3 indicators of learning motivation, namely the desire and desire to succeed, the existence of interesting activities in learning and the existence of rewards in learning. The average percentage of motivation for each indicator in the experimental class and control class can be seen in Figure 2.
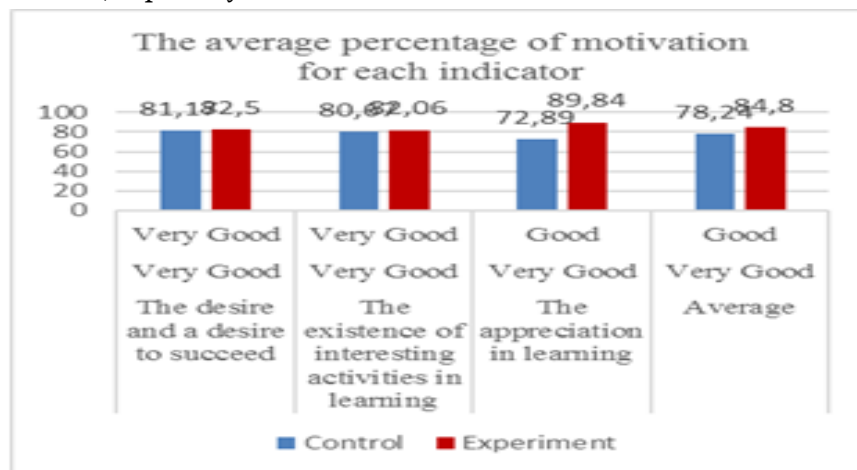

Figure 2. The average percentage of learning motivation for each indicator of the experimental class and the control class

Based on Figure 2, the average value of the percentage of each motivation indicator for the control class is in the good category. This can be seen in the average value of 78.24. In each indicator, namely the existence of a desire and a desire to succeed at 81.17 in the very good category, the existence of interesting activities in learning of 80.67 in the very good category, the appreciation in learning of 72.89 in the good category. While the experimental class is in the very good category, it can be seen in the average value of 84.8.

It can be seen in each indicator that there is a desire and a desire to succeed at 82.5 in the very good category, there are interesting activities in learning at 82.06 in the very good category, there is an award in learning of 89.84 in the very good category. It can be seen that the average of each indicator in the experimental and control classes, respectively, is 84.8 which is in the very good category and 78.24 is in the good category.

This research is in line with that conducted by Cahyani, Listiana, & Larasati (2020) which states that during the pandemic students' learning motivation is still in the good category. Another study conducted by Nasrah & Muafiah (2020) showed that students had a very high motivation for desire and the desire to succeed by 95%. The existence of interesting activities by 83.5%, the encouragement and learning needs of 87.2%. Perseverance in facing tasks is 92.1% and tenacious in facing tasks is 80.2%. 24 is in the good category.

Park (2012) found that there is a significant difference in students' intrinsic motivation, where the intrinsic motivation of extroverted students is higher than introverted students. Shanklin (2007) stated that using the Monopoly board game earlier in the course elicits a positive motivation and students' usually ask ―when are we going to play again. Moreover the Monopoly approach can be used to capture and hold the attention of students until the desired skills can be achieved

The independent sample t test was used to determine the difference in the average learning outcomes between the experimental class and the control class. The results from the pretest posttest showed that there was no significant difference in learning outcomes between the control class and the experimental class. The results of the average pretest posttest can be seen in Figure 3.
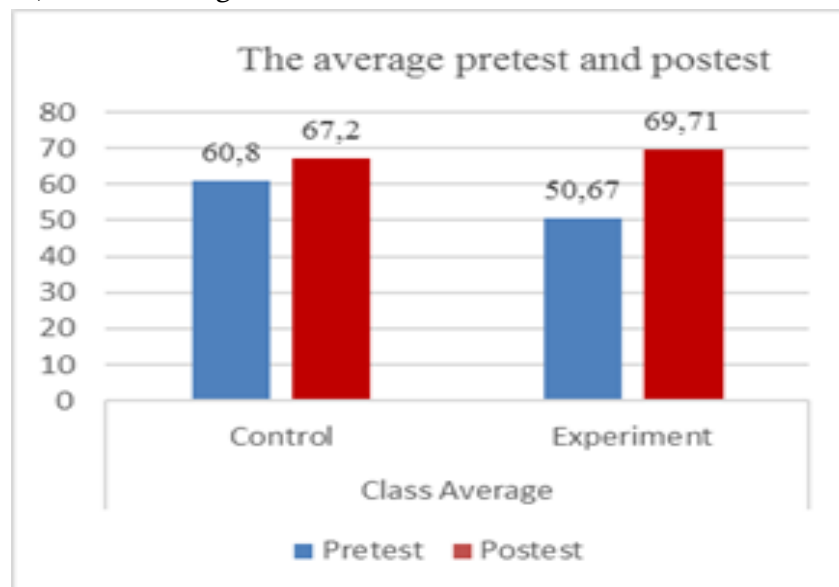
Figure 3. The average value of the pretest and posttest experimental and control classes

Based on Figure 3, the average pretest score for the control class is 60.8 and the posttest average is 67.2. In the experimental class the pretest value was 50.67 to 69.71 at the average posttest value. So from the diagram above, it can be seen that there is no significant difference in learning outcomes between the control class and the experimental class.

The absence of a difference in the average student learning outcomes between control class and the experimental class was due to the fact that online learning in schools in the pandemic era turned out to be ineffective. The school inevitably has to carry out and prepare whatever is needed. Study habits that are carried out face-to-face cannot be eliminated, students generally find it difficult to distinguish between holidays and studying at home.

From interviews with science teachers, information was obtained about the very small number of students participating in online learning and this was unfortunate by educators. Another similar study was conducted by Telupun (2020) that through interviews with teachers, things that are always complained of include the absence of students in online learning. Constraints or limitations found in the field make online learning ineffective. Online learning greatly limits and complicates the learning process in junior high schools, both for an educator and for students.

The pandemic atmosphere raises new problems related to facilities and student readiness so that they can continue to carry out learning effectively. However, often learning obstacles such as network and internet quotas, the use of learning media (HP/Laptop) which is not supported is unavoidable. Aulia (2020) stated that technical problems are the main obstacles that must be faced. Constraints such as network and internet quota, signal to the selection of applications used. The results of research from Firman & Rahman (2020) state

that the material delivered online may not necessarily be understood by all students.

CONCLUSION

The implementation of Spin Game Science Smart (SGSS) media on vibration and wave material on the level of motivation and student learning outcomes in the pandemic era shows that the level of student learning motivation during online learning in the pandemic era using the Spin Game Science Smart (SGSS) powerpoint media as a whole is 83,64 is in the very good category while the average motivation for each indicator is 84.8 in the very good category and without spin game science smart (SGSS) 79.53 is in the good category while the average for each indicator is 78.24 fall into the good category.

The difference in the use of spin game science smart media (SGSS) powerpoint and without spin game science smart (SGSS) on student learning outcomes in online learning does not provide a significant difference, which can be proven through the results of the independent sample t test, the value of sig (2-tailed) is obtained.) of 0.457 or greater than 0.05.Based on the conclusions above, the authors suggest that online learning in the pandemic era must pay attention to the application of learning that is suitable for use so that students want to learn and do assignments and the Spin Game Science Smart (SGSS) media can be used as an alternative media used so that students interested in learning.

REFERENCES

Arsyad, A. (2013). Revision edition of learning media. Jakarta: Rajawali Pers, 24, 4. Aulia, NN, Ummah, US, & Samawi, A. (2019). The Urgency of Disability Service Units in Inclusive State Universities. 5(November), 68–73.

Aulia, NN, Ummah, US, & Samawi, A. (2019). The Urgency of Disability Service

Units in Inclusive State Universities. 5(November), 68–73.

Cahyani, A., Listiana, ID, & Larasati, SPD (2020). Learning Motivation of High School Students in Online Learning in the Covid-19 Pandemic Period Journal of Islamic Education, 3(01), 123–140.

Djumiko, Fauzan, S., & Jailani, M. (2020). A SCHOOL PRINCIPAL'S GUIDE TO MANAGING SCHOOLS DURING THE COVID-19 PANDEMIC. Pendadogic Journal of Education, 15(September), 56–69.

Firman, & Rahman, SR (2020). Online Learning in the Midst of the Covid-19 Pandemic. Indonesian Journal of Educational Science, 02(02), 81–89.

Fatkhurrohman, MA, & Astuti, RK (2017). Pancasakti Science Education Journal. Pancasakti Science Education Journal, 2, 163–171.

Hayati, MN, Supardi, IK, & Miswadi, SS (2014). Innovative Journal of Curriculum. Innovative Journal of Curriculum and Educational Technology, 2(1).

Hayati, M. N., Fatkhurrohman, M. A., & Aprillia, N. (2022, December). The "Sciencemopoly Game" to improve junior high school students' learning motivation on the digestive system topic. In AIP Conference Proceedings (Vol. 2600, No. 1). AIP Publishing.

Nasrah, & Muafiah, A. (2020). Journal of Basic Education Research. Journal of Basic Education Research, 03(2), 207–213.

Martínez, MP, & Ferrer, JMC (2021). Effectiveness of the flipped classroom model on students' self-reported motivation and learning during the COVID-19 pandemic. Humanities and Social Sciences Communications. https://doi.org/10.1057/s41599-021-00860-4

Park, S., & Kim, S. (2021). Is Sustainable Online Learning Possible with Gamification?— The Effect of Gamified Online Learning on Student Learning.

Park, H. (2012). Relationship between motivation and student's activity on educational game. International Journal of Grid and Distributed Computing, 5(1), 101-114.

Shanklin, S. B., & Ehlen, C. R. (2007). Using the Monopoly board game as an in-class economic simulation in the Introductory Financial Accounting course. Journal of College Teaching & Learning (TLC), 4(11).

Sardiman, AM (2018). Teaching and Learning Interaction and Motivation. Depok: Rajawali Press

Sari, CDA, & Supardi, IK (2012). THE EFFECT OF THE TEAM GAMES TOURNAMENT MEDIA TOURNAMENT-QUESTION CARDS MODEL ON STUDENT'S LEARNING OUTCOMES ON HYDROCARBON MATERIAL. 1220–1228.

Subakti, H. (2020). Learning Outcomes of Indonesian Content with the Theme of a Friendly Environment Using the Spinning Wheel Media Class V SDN 007 Samarinda Ulu. Journal of Indonesian Language and Literature Education, 2(April), 192–206.

Supardi, Suparman. 2010.Student-Enjoyable Teaching Style. Yogyakarta: Pine Book Publisher

Susongko, P. (2016). Introduction to Educational Research Methodology. Tegal: Publishing Agency of Pancasakti University, Tegal.

Telepun, D. (2020). The Effectiveness of the Implementation of the Edutainment Learning Model to Motivate Students During Online Learning During the Covid-19 Pandemic. Journal of Syntax Transformation, 1(6).

Triastuti, D., Akbar, S., & Irawan, EB (2017). THE DEVELOPMENT OF THE BOARD OF PANCEL GAME MEDIA. Journal of Theoretical Education, Research and Development, 2(October), 1344–1350.