



Improving Student Learning Outcomes With Educational Game-Based Interactive Learning Media

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Abstract: This study uses research and development methods (Research and Development) to produce an interactive learning device based on good educational games to improve student learning outcomes and motivation. This research is used in order to produce a certain product and test its effectiveness in improving student learning outcomes. Data processing using a questionnaire method, tests, then analyzed quantitatively descriptive. The research sample is MTs students. Tarbiyah Islamiyah Kedemangan class IX. The sampling technique used is purposive sampling, using quantitative, qualitative descriptive analysis, and correlative hypothesis testing. The results of this study showed an increase in student learning outcomes of the experimental group, which were classified as good by utilizing interactive media based on the Kahoot! Educational game. Not only that, but students' learning motivation is also categorized as good, so it can be concluded that interactive learning based on the educational game media that was developed is suitable to be used to improve student learning outcomes and motivation.

INTRODUCTION

Education in the industrial revolution 4.0 era makes technology the main ingredient in learning. Both teachers and students need to master technology (Meiliani, M., Tanti, T., & Sulman, F. 2021). Technology will always evolve with the times (Rozal, E., dkk. 2021), so learning actors are required to adapt to these changes (Putra, M. I. J., Junaid, M., & Sulman, F. 2021). The ability of teachers to master technology is very influential in improving the learning process as an interactive medium which causes students to be more active in carrying out their activities (Sulman, F. (2019).. However, the reality on the ground today is different. This is because teachers and students do not master technology in carrying out the learning process (N. Nurhayati and W. Apriani) & (Sulman, F. 2012 & Sulman, F., dkk. 2021). The teacher carries out the learning process without utilizing technology so that students are not motivated to learn, especially learning Physics (Sulman, F., Sutopo, S., & Kusairi, S. 2021). Even though teachers are led to innovate the learning model and can present a pleasant atmosphere in the learning process. The teacher is also responsible for the knowledge and student learning outcomes related to the material that has been obtained (D. Octariani and A. C. Panjaitan).

Based on the results of observations and observations made to teachers and students at the MTS Tarbiyah Islamiah Kedemangan school, information is obtained that the subjects still considered complex subjects to understand are Physics. This assumption makes students lazy in studying physics, so they are less active in learning. The difficulty was caused because the physics learning process was not presented attractively, so it was less meaningful. Furthermore, students have not been actively involved, and the use of learning media is not updated (Sulman, F., dkk. 2020). Teachers basically carry out the learning process by explaining various concepts informatively. Students act as listeners, take notes, and answer questions. This situation will make students less motivated in the learning process so that their learning outcomes will decrease.

The paradigm that Physics is a monotonous subject and is most feared by students. So that the problem must be handled properly so that it can be overcome. One way to overcome this is to use interactive learning media as a teacher's effort to provide different knowledge to students and will foster a sense of interest and interest in student learning. The use of interactive media can make the learning process easier and more interesting. We package this interactive media game-based because we want to convey to students that learning physics can also be while playing and of course, fun.

Interactive media is a media that plays an important role in the process of increasing student understanding (Zb, A., dkk. 2021) and has a positive influence on student learning outcomes. (R. G. P. Panjaitan, T. Titin, and N. N. Putri) Furthermore, learning using interactive media is very interesting (Zb, A., dkk. 2021), easy for students to understand, and doesn't get bored quickly because this interactive media is a learning technique that is done while playing (N. Cahyati, Syafdaningsih, and Rukiyah). Educational games (educational games) are games that are used in the learning process (Zb, A., dkk. 2021), and these games contain educational elements or educational values. Thus it can be stated that the learning process carried out using games is fun and provides motivation to student learning.

Many researchers as a learning medium have done research on educational games. Some of them, namely research conducted by (F. S. Abdullah and T. N. H. Yunianta) concluded that educational game media in learning Physics could improve student learning outcomes in solving problems of Newton's Law II. Furthermore, learning using educational games was declared very effective (Zb, A., dkk. 2020), this is because the media is valid, feasible, and practical and 90% of students can complete the learning process (S. Wulandari, C. Ainy, and E. Suprapti). Then (R. Andari) concluded that learning outcomes by utilizing the Kahoot educational game media obtained better results when compared to using other media. That's why here we take and use this Kahoot application for our research media.

Based on these problems, we will conduct research with the title Development of Interactive Media Based on Educational Games in Physics Learning. The purpose of this research is to develop learning media based on educational games in physics learning, especially on Newton's Law II material for class IX students at MTS Tarbiyah Islamiyah Kedemangan.

METHOD

This research uses a development research method commonly known as Research and Development, which is research that produces a particular product and tests its feasibility. This time, the product produced is a game-based interactive learning media called Kahoot! for grade IX MTs students. Tarbiyah Islamiyah Kedemangan is expected to improve student learning outcomes and motivation. The reason for choosing the development of Kahoot interactive media is based on several considerations, such as it can stimulate students' learning motivation, minimize the boredom of learning, and can be used by students to learn independently with fun, of course.

The subjects of this research are students of class IX MTS Tarbiyah Islamiyah Kedemangan. The research was carried out in the evaluation of learning in the form of an interactive quiz game developed using the Kahoot application in physics subjects, especially Newton's Law II material. This time, the sample consisted of 16 students, with 11 as the control sample and five as the experimental sample. This study uses data collection techniques with a pretest to determine students' initial abilities and a posttest to measure student learning achievement and continued with the method of submitting responses to determine whether students are motivated or not by learning with game-based interactive media such as Kahoot! This.

RESULT AND DISCUSSION

The development of this interactive learning media aims to improve student learning outcomes and motivation and is expected to improve the quality of learning, especially in the Physics subject matter of Newton's Second Law. In order to find out that the developed game-based interactive learning media can improve student learning outcomes, it is by collecting data with a pretest to determine students' initial abilities and a posttest to measure student learning achievement. Sixteen students followed the competency test for Newton's Law II by giving a pretest and posttest. The value of student learning outcomes can be seen in Table 1 below:

Table 1. Students' Pretest and Posttest Scores

Test Score	Experiment Class Average	Control Class Average
<i>Pretest</i>	25	18,75
<i>Posttest</i>	63,2	29,22

Based on the data table, a comparison of the values between the pretest and posttest in the experimental class showed a pretty good increase with an average pretest score of 25 (25%) and an average post-test score of 63.2 (63.2%).). Thus, through interactive media based on educational games, there has been an increase in student learning outcomes by (38.2%). The students' learning motivation can be measured by asking for responses at the end of the lesson, and then analysis and conclusions are made regarding student responses. So that it can be concluded, the overall student learning motivation is in a good category and increasing.

CONCLUSION

From the results of the study, it can be concluded that learning outcomes using interactive media based on educational games called Kahoot! Classified as good. The learning outcomes of the experimental group students were higher when compared to the control group. The difference in the final results of the experimental class students compared to the control class was caused because some students were more active in these learning activities. Then students can also get good feedback from the final results of the quiz and succeed in understanding and re-evaluating the material given in Newton's Law II. The interactive learning media based on educational games used can help students be motivated to learn to get better learning outcomes than before.

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