JOURNAL OF INDONESIAN SCIENCE TEACHERS

Vol.1(2): 105-113, 2023
Science Education Universitas Riau Collaborate with Perkumpulan Pendidik IPA Indonesia
https://jist.ejournal.unri.ac.id/index.php/JIST

Application of Mobile Learning to Increase Interest in Learning Science in Class VII Junior High School Students

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Abstract: *This research aimed to determine the increase in students' interest in learning science by studying the concept of material classification and its changes, through mobile learning learning media. The research method uses a pretest-posttest control group design with quantitative data types. Data on students' learning interests was collected through distributing learning interest questionnaires before and after learning using mobile learning media. The research instrument was prepared based on ARCS learning interest aspects (attention, relevance, self-confidence, and satisfaction). Data were analyzed descriptively using a Likert scale and inferentially using the Independent Sample T-Test. The results of the research showed that students' interest in learning had increased in the experimental class with a good category of 83% and a very good 17%. Inferentially, a significant increase in interest in learning was obtained. These results provide the conclusion that the application of mobile learning media has a positive impact on increasing student interest in learning better in learning material classification and its changes in class VII Junior High School.*

Keywords: *mobile learning, learning interests, material classification and its changes.*

e-ISSN 2987-324X

Submitted: 05-03-2023
Accepted : 05-12-2023
Publish : 06-12-2023

Penerapan Mobile Learning bagi Meningkatkan Minat Belajar IPA Siswa Kelas VII Sekolah Menengah Pertama

Abstrak: Tujuan kajian ini untuk menentukan peningkatan minat belajar IPA siswa dalam mempelajari konsep klasifikasi materi dan perubahannya, melalui media pembelajaran *mobile learning*. Metode riset menggunakan *pretest-posttest control group design* dengan jenis data kuantitatif. Data minat belajar siswa dikumpulkan melalui penyebaran angket minat belajar sebelum dan sesudah diberikan pembelajaran dengan media mobile learning. Intrumen kajian

disusun berdasarkan aspek minat belajar ARCS (perhatian, relevansi, percaya diri dan kepuasan). Data dianalisis secara deskriptif menggunakan skala likert dan secara inferensial melalui uji *Independent Sample T-Test*. Hasil kajian diperoleh data minat belajar siswa mengalami peningkatan pada kelas eksperimen dengan kategori baik 83% dan sangat baik 17%. Secara inferensial diperoleh peningkatan minat belajar yang signifikan. Hasil tersebut memberikan kesimpulan bahwa penerapan media pembelajaran *mobile learning* berdampak positif bagi peningkatan minat belajar siswa yang lebih baik pada pembelajaran klasifikasi materi dan perubahannya di kelas VII SMP.

Kata Kunci: mobile learning, minat belajar, klasifikasi zat dan perubahannya.

Introduction

The very rapid progress of technology, including in the world of education, cannot be separated from the development of science and technology (Hosen, 2022). This technological development presents a challenge for educators to create learning media that can improve the quality of education. Education is a system to educate the life of the nation and state, so it is very important in life to obtain education in various fields including the field of science (Jeno et al., 2020).

Learning physics as part of science contains concepts that require solving with the help of mathematical formulas and comprehensive analysis, so students will experience difficulties if the learning is not carried out properly using the right strategies and media. Students have to memorize formulas and repeat definitions given by the teacher without understanding the meaning and content. There are still some students who are not interested in taking physics subjects because they are considered difficult and cannot understand the purpose of learning physics (Samudra et al, 2014). As a result, students feel lazy and less interested in physics subjects, thus affecting students' interest in learning physics. To overcome this problem, it is necessary to change the learning process based on the curriculum used (Daryanto, 2014).

One of the topics studied in physics is matter classification and its changes, which students must understand and master. This topic is also related to the field of chemistry such as chemical elements, nomenclature and reaction equations, the concept of mole stoichiometry, and other basic laws. If students cannot understand the concepts in basic material, then students will have difficulty solving questions related to the topic being studied, and this can cause misconceptions (Nurhafizah et al., 2017).

Learning physics requires visual analysis skills so that students can comprehend the material provided so that students can find solutions to the problems given. The lack of learning media that supports visualization is a problem in studying science lessons, especially on material topics and changes (Laelasari et al., 2023). Students tend to experience misconceptions because they are not yet interested in optimally studying the physics science topics given. Students only remember without understanding properly, so students' conceptions tend to be wrong and not under the proper concepts (Alfisyahrina et al., 2018).

Students have varying levels of learning interest in learning physics science, ranging from low interest in learning to those with high interest. This means that students have different learning interests from one student to another (Supardi, et al. 2019). For this reason, teachers must be able to stimulate students' interest in learning, thereby stimulating maximum interest in learning, to achieve good learning outcomes. The teacher acts as a facilitator and guide to students. If students' interest in learning is good, it is hoped that this will encourage them to study hard, be able to face all challenges and obstacles in learning, so that their learning achievement will be good. The use of learning media will encourage student involvement in the learning process so that a positive attitude towards learning material will emerge which of course will make it easier for students to understand the material being studied (Pribadi, 2017).

An appropriate medium is needed to provide explanations of abstract topics in the form of concrete explanations. Explanations of the material can be provided through learning video media that can be accessed using mobile learning so that physics science topics are more interesting and easy for students to understand (Nurul, et al., 2021). One media that can display the scope of learning is online learning media via Android with the help of the smart creator system program.

The use of information and communication technology continues to grow in the world of education with various patterns and strategies, such as e-learning systems that utilize digital media and electronic devices (Pribadi, 2017). The use of mobile learning (m-learning) as a form of learning that utilizes mobile communication technology (Kim & Park, 2019). M-learning accommodates the use of handheld and mobile IT devices such as cell phones, PDAs, tablets, and laptops in the teaching and learning process (Samsinar, 2020). M-learning is a unique way of learning because students can access learning resources, directions, interact, and use applications that can be used anytime and anywhere (Sattarov & Khaitova, 2019). Students are expected to be able to focus on learning and encourage students to learn throughout their lives.

M-learning has the advantage of being an electronic media whose content can be designed with a more attractive appearance, both visual and audiovisual, thereby clarifying the visualization of learning. Students do not get bored studying the material presented in this mobile learning and it can be used via or without an internet network. This means that students can access it by downloading it at the start of learning, so they don't always need an internet quota to operate it (Hidayatullah, 2016). Based on this description, it is important and interesting to determine the increase in interest in learning for students using mobile learning-based learning media on topics of material classification and its changes in class VII junior high school.

Research Methods

This research is a quasi-experimental type with a pretest-posttest control group design. The research design in the control class used learning as usual without m-learning,

while in the experimental class learning was carried out using m-learning via a smart card application (Sugiyono, 2019). The research was carried out in class VII of SMP Negeri 4 Ukui, Kerinci Regency, Riau Province. Two classes were taken as samples for the experimental class and the control class with a total of 60 students. Both classes were given an initial interest questionnaire and a final interest questionnaire after the lesson was given.

Research data on students' learning interests was collected through a learning interest questionnaire given before and after learning was carried out. The instrument for student interest in learning uses ARCS interest generation with 4 indicator of interest, namely attention, relevance, confidence, and satisfaction, which consists of 26 statement items (Rahmad, 2018).

Table 1. Category of learning interest

No	Interval score	Category
1.	1,00-1,49	Less good
2.	1,50-2,49	Enough good
3.	2,50-3,49	Good
4.	3,50-4,00	Very good

Source: Keller (1987)

Learning interest was analyzed descriptively and inferentially. Data on students' learning interests was obtained from learning interest scores using a 1-4 Likert scale. The categorization of learning interest was descriptively determined according to Table 1, while the increase in interest was analyzed inferentially using SPSS with the Independent Sample T-Test after normality and homogeneity tests were carried out. Decision making via t-test with the criteria, if the sig(p) value < 0.05 then H0 is rejected, and if the sig(p) value > 0.05 then H0 is accepted.

Results and Discussion

The results of the application of learning using mobile learning media on the topic of material classification and its changes in Class VII of SMP Negeri 4 Ukui, obtained the distribution of learning interest scores as shown in Figure 1. Based on the results of students' initial learning interest scores before being given treatment, the data was obtained in Figure 1. It turned out that there was no difference. Students' initial learning interest (pre-test) in both classes with the same results between the experimental class and the control class where both obtained a score of 100% was in a good category. Meanwhile, the results of the students' final learning interest scores after being given treatment, obtained different category levels, namely in the experimental class the good category was 83% and very good 17%, while in the control class it remained in the good category with a percentage of 100%. This data proves that there is a positive effect on interest in learning by using m-learning in physics learning as per the study (Meliana et al., 2016).

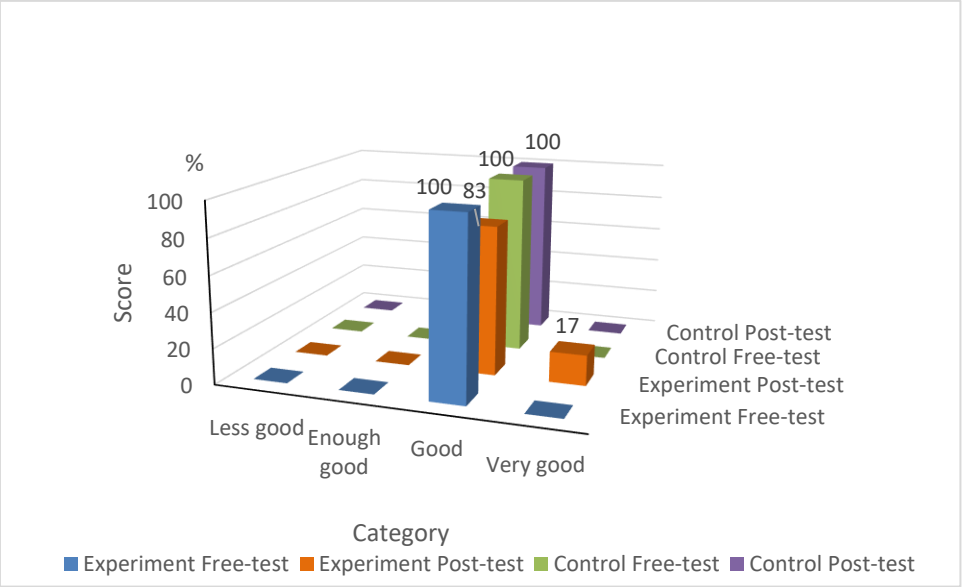

Figure 1. Categories of student learning interests.

The results of the analysis of students' interest in learning questionnaires showed that the average interest questionnaire score before learning in the experimental class was 2.88, while the average interest questionnaire score after learning was 3.41 with good criteria. Analysis of increasing experimental class students' interest in learning obtained the highest score on the Attention indicator, 0.61 and the lowest score on the satisfaction indicator, namely 0.46. Furthermore, the results of the analysis of students' interest in learning questionnaires in the control class, the average interest questionnaire score before learning was 2.88 while the average interest questionnaire score after learning was 3.24 with good criteria. The highest indicator of interest in learning is the satisfaction indicator 0.37 and the lowest is the attention indicator 0.32. These results show that students' interest in learning is better in experimental classes that use mobile learning, supported by studies (Supardi et al., 2019). Students are more enthusiastic about focusing their attention and have high confidence in learning using m-learn. Low indicators are related to satisfaction and relevance to learning. However, their level of interest is still higher than the control class according to the data in Figure 2.

The attention indicator which refers to students' attention is the highest improvement score compared to the other 3 categories in the experimental class. This data shows that the use of m-learning learning media attracts students' attention more, thus making them interested in learning. The mobile learning used requires students to concentrate more during learning, encouraging a student-centered learning system, so that student attention increases in line with research (Kadir & Akpinar, 2018).

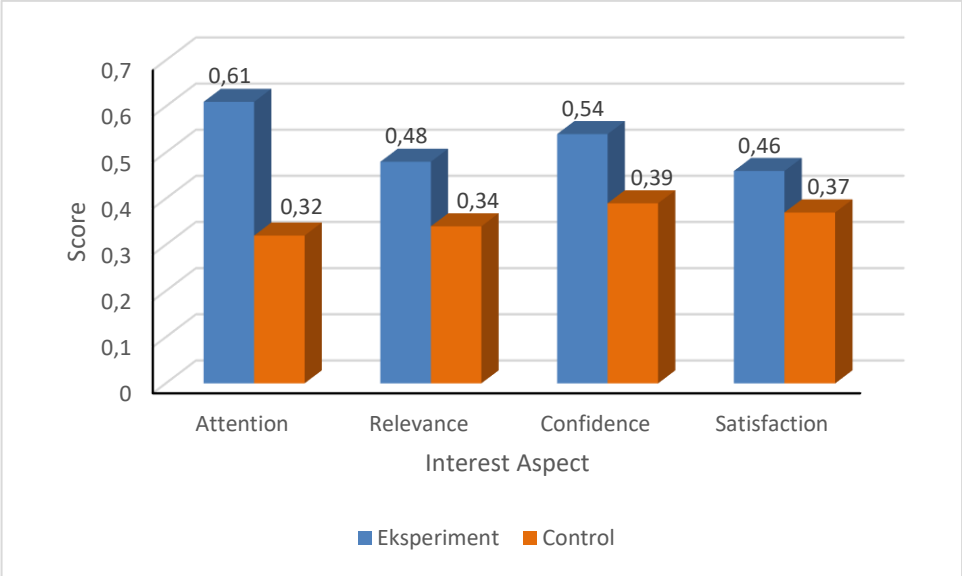

Figure 2. Diagram of students' learning interests.

The relevance indicator as a relevance link between media, learning materials, the conditions students already have, as well as those related to their needs, the results show a higher score than the control class. The confidence indicator is related to students' belief in their own abilities and their ability to believe in themselves. Terminologically, self-confidence is the confidence a person has in handling all situations calmly in learning. The satisfaction indicator is the level of student satisfaction which is characterized by feelings of joy, positive feelings that arise when they receive appreciation for themselves. Although the increase in this indicator is not too high, it is higher than the control class. Several aspects that can have an impact on learning interest include differences in student character to determine the value of satisfaction and confidence, so that increasing student suitability, confidence, and satisfaction is not the same as implementing mobile learning (Keller, 1987).

Table 2. Inferential test data for interest in learning

		Levene's Test for Equality ofVariances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Student Learning Interests	Equal variances assumed	3.218	.078	10.287	58	.000

The results of the independent sample t-test of pretest data in both classes obtained a significance of p = 0.583 (p > 0.05) which stated that the Ho hypothesis was accepted, meaning that there was no significant difference before being given learning treatment with mobile learning in increasing students' interest in learning. After learning using mobile learning learning media in the experimental class and learning as usual in the control class and given a posttest learning interest questionnaire, the sample data for the

experimental class and control class were normally distributed using Kolmogorov-Smirnov, while the homogeneity of the two classes had a homogeneous variance, so it met the requirements statistic test.

The results of hypothesis testing using the independent sample t-test with the SPSS program obtained a significance value for interest in learning, namely $p = 0.000$ ($p < 0.05$) shown in Table 2. This result shows that Ho was rejected, so that the final interest in learning questionnaire data obtained gave significant differences. There is significant interest in student learning between classes that apply mobile learning-based learning media and classes that apply conventional learning in material classification and changes at SMP Negeri 4 Ukui class VII.

Figure 3. Students using mobile learning applications.

Figure 3 shows the activities of students seriously participating in learning activities using mobile learning equipment. This means that if the gadjed equipment is conditioned in such a way as to be used in learning, then students can focus on participating in learning with mobile learning as per studies (Çukurbaşı et al., 2022; Klimva, 2019; Kim & Park, 2019). So the results of the descriptive and inferential analysis show that there is an increase in students' interest in learning after using mobile learning to study material classification and its changes.

Other factors that influence students' interest in learning apart from several things such as differences in student character in determining benchmarks for their respective beliefs and satisfaction, the ability of teachers and media in organizing classes, student activity, as well as the lack of freedom of thought for students available in learning and the media used (Hendrawijaya, 2022). Students who feel in control in a learning that is bound and full of demands can make improvements that are not that big. Likewise, if the ability of teachers and media is lacking in organizing classes, then students' abilities and curiosity cannot be achieved optimally. This also explains the slight increase in the four aspects of direct interest. Student interest in learning is closely related to student activity which will then determine student learning outcomes (Suendarti & Virgana, 2022). Low interest in learning causes students not to absorb learning optimally, so that student learning outcomes do not show a high increase.

The research results are in line with research conducted by Meliana et al. (2016) a score of 3.41 is classified as high interest in learning. Apart from that, Rizqillah et al. (2016) revealed that the use of mobile learning media can increase students' interest in learning in the learning process.

The mobile learning learning media that has been used has the advantage of being able to train students to be more independent in carrying out learning activities, the media can be used anytime and anywhere if the appropriate device is available, the media can be accessed again and re-studied when they still need learning material, provides material presentation in an easy way. overall with an adjusted sequence of learning activities, providing shared facilities that support learning, and succeeded in increasing students' interest in learning physics science. However, the use of mobile learning has limitations such as the need for adequate electronic devices.

Conclusion

The results of research conducted at SMP Negeri 4 Ukui by applying the use of mobile learning learning media concluded that there was a better increase in student interest in learning and significant differences were found in the interest in learning of students who applied Mobile Learning learning with conventional classes through the Independent-Samples T-Test. . For this reason, the use of mobile learning can increase students' interest in studying science and physics, especially on the topic of material classification and changes at SMP Negeri 4 Ukui class VII.

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