

The Influence of Mobile Learning Based on Articulate Storyline 3 on Colloid Materials on Students' Learning Interest

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Abstract: This research aims to measure students' interest in learning through the use of mobile learning based on storyline 3 on colloidal material. The type of research used is experimental research. The subjects in this research were students in class XI MIPA SMA Negeri 1 Seyagen, totaling 17 students. In this research, students' interest was measured using the Pretest-Posttest technique by administering an interest questionnaire. From the results of the analysis, it is known that there was an increase of 4 students who were promoted from high to very high. The pretest and posttest results of learning interest show that learning using articulate storyline-based learning media has increased students' learning interest by 23.40%. The results of the paired t-test stated that the use of articulate storyline-based learning media was effective in increasing students' interest in learning.

Keywords: Articulate storyline; Colloid; Interest to learn; Mobile learning

Introduction

The industrial revolution 4.0 has given birth to new life in all areas of human life, including in the field of education with the presence of technology. Society 5.0 is starting to emerge by solving various challenges by using or utilizing technology that has been produced in industry 4.0 (Usmaedi, 2021). As a result of the industrial revolution 4.0 and the emergence of society 5.0, there is a need for creative innovation in learning using technology, one of which is learning media (Arfianti et al., 2023).

Increasingly advanced technological developments have spurred the development of increasingly advanced learning media as well. Teachers can use technology as a learning medium in conveying knowledge to students. Teachers can create various varied learning activities and activate students using learning media so that the learning process becomes more interesting and interactive (Lawrence et al., 2018; Mouza et al., 2015; Sugiani, 2023).

The use of interactive learning media will provide new experiences for students. The large amount of

content that can be integrated makes students more curious and open to studying chemistry (Rosa et al., 2022). Not only in the form of text and images like conventional media, but interactive learning media can contain text, images, animation, video and audio to explain physics material clearly in a two-way manner. When using interactive learning media, students play an active role in operating it, which has been provided with various menu options for learning (Mahardhika et al., 2021). This clearly shows that the rapid development and application of technology has positively changed the way of teaching and learning in the field of education (Al-Khowarizmi et al., 2020).

Mobile learning-based learning has been widely developed for students at elementary school or junior high school level and not many Indonesian researchers have developed mobile learning for science learning purposes, especially chemistry, for high school students (Clapson et al., 2020). Mobile learning has a positive impact on communication between students and educators during distance learning (Karo-Karo et al., 2018). Game-based learning can increase students' knowledge and skills to foster a love of challenges

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(Putri et al., 2022). Students will be given the opportunity to solve problems in the surrounding environment related to chemical materials independently according to the solutions they find. In its implementation, students can critically find problems in the surrounding environment and can determine their own solutions (Sholikah et al., 2023).

Chemistry is one of the subjects that most high school students are less interested in (Subagia, 2014). Chemistry learning generally contains many abstract concepts so that understanding them requires imagination with the help of visual images that can support the learning process (Afrida et al., 2021) because it is abstract, chemistry learning is less popular with students because it is considered as one of the subjects. which is difficult, thus making students not want to study chemistry further. Game-based learning is defined as the use of games in academic education which are used to illustrate abstract learning concepts (Kucukkal et al., 2019). Chemistry is a lesson that is closely related to students' daily lives so that they can contribute to supporting their environment (Byusa et al., 2022). For educational purposes, games are used to teach abstract concepts, develop thinking competencies, encourage emotional learning (Gupta, 2019). Many studies have revealed multimedia-based learning which has developed learning media to be used in mobile learning using the Articulate storyline application (Fardila et al., 2021; Sindu et al., 2020), therefore mobile learning is very important in the technological era because it is an interesting research trend (Al-Emran et al., 2016).

Interest in learning is one of the internal factors that can influence the success of learning. Interest is defined as a persistent tendency to pay attention to and remember certain activities with pleasure (Slameto, 2010). Efforts need to be made to increase students' interest in learning, including implementing the Science Technology Society (Harefa et al., 2020). Based on observation data, it shows that students have a relatively low interest in learning chemistry, an average of 34% (Widayanti, 2023). It is necessary to develop a good interest in learning chemistry in students. Considering the importance of interest in the learning process (Daryanes et al., 2023), teachers must pay attention to and develop students' interest in learning chemistry. This is because interest can encourage students to be more active in studying chemistry (Hemayanti et al., 2020).

Based on the problems described above, it is necessary to have fun learning media in order to increase students' interest in learning. One of them is using interactive learning media based on an articulate storyline.

Method

This research was carried out at SMA Negeri 1 Seyagen. This research uses an experimental method, the design used is pre-experimental. The design used in this research is the one group pretest-posttest design. This design uses an initial test (pretest) given before the start of instruction or treatment and a final test (posttest) given after the treatment (Sugiyono, 2017).

Table 1. The One Group Pretest-Posttest Research Design

Pretest	Treatment	Posttest
O ₁	X	O ₂

This research involved one experimental class without using a control class. The sample in this study used a standardized random sampling technique and the experimental class was determined using a random sampling technique. The research subjects were 17 students in class. The data analysis used was descriptive analysis and paired sample t test using SPSS. There are two requirements for using a paired sample t test, namely normality and homogeneity. The normality test was calculated using Kolmogorov-Smirnov, while the homogeneity test was calculated using Levene. Data is said to be normally distributed if the significance value (Sig.) > 0.05, as well as homogeneity, data is said to be homogeneous if the significance value (Sig.) > 0.05 (Nuryadi et al., 2017). The following is the hypothesis formulation for the paired t-test: Ho: There is no significant difference between the pretest and posttest results; Ha: There is a significant difference between the pretest and posttest results; based on the hypothesis that has been formulated, Ho is accepted if the Sig value. > 0.05 (Nuryadi et al., 2017).

Result and Discussion

The results of this research are that there is an influence of the use of articulate storyline-based learning media on the learning interest of class XI IPA IV students at SMA Negeri 1 Seyegan. Analysis of students' learning interest is shown in the following table 2.

Table 2. Results of Learning Interest Analysis

Test	Very less	Not enough	Enough	Tall	Very high
Pretest	0	0	0	16	1
Posttest	0	0	0	12	5

From the results of the analysis, it is known that there was an increase of 4 children who were promoted from high to very high. The overall increase in interest

in learning after using articulate storyline-based learning media is presented in the following picture.

Visual learning from media is very important in learning activities (Thongmak, 2018), this is also supported by research conducted by Ernandita et al. (2019), Nurfajriyah (2016), and Ichsan et al. (2020). That the benefits of a visual learning environment can improve students' memory in understanding the material. Students are also motivated to use digital

media and increase their experience by using digital media in the learning process. Schubatzky et al. (2023) as stated by Fatikhah et al. (2021) that the articulate storyline presents many animated and interactive features so that it has high interactivity. In accordance with what was stated by Wilechansky et al. (2016) and Rohmah et al. (2020) that articulate storyline has media advantages, among other things, it can provide easier, more flexible access.

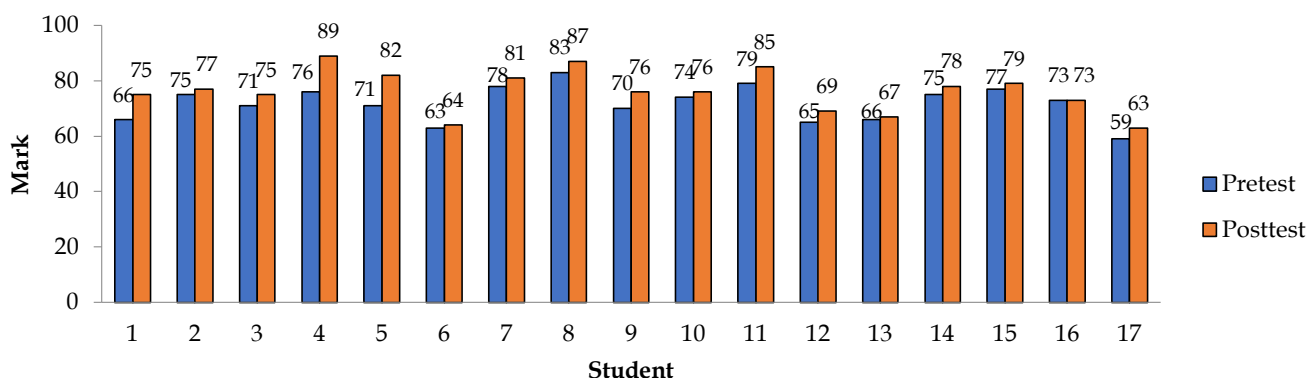


Figure 1. Pretest and posttest results of students' learning interest



Figure 2. Visualization of chemistry learning

The effectiveness of articulate storyline-based interactive multimedia was obtained through the results of the pretest and posttest for tests on chemistry material. Pretest and posttest were carried out to obtain initial and final test scores on chemistry material which would indicate the level of students' interest in learning before and after using multimedia. (Yahya, 2023). The pretest and posttest results of interest in learning show that learning using articulate storyline-based learning media has increased students' interest in learning by 23.4%. To find out whether there is a significant difference between the pretest and posttest results, a paired t-test was carried out using SPSS. The conditions for the paired t-test are that the data is normally distributed and homogeneous, so the pretest and posttest results are tested for normality first and the results are shown in the following table 3.

Table 3. Normality Test Results using SPSS

	Tests of Normality							
	Test	Statistic	Kolmogorov-Smirnova			Shapiro-Wilk		
			df	Sig.	Statistic	df	Sig.	
Student Interest Results	Pretest	0.114	17	0.200*	0.976	17	0.917	
	Posttest	0.140	17	0.200*	0.969	17	0.799	

*. This is a lower bound of the true significance Lilliefors Significance Correction

Based on the table above, it can be seen that the pretest and posttest significance values for

Kolmogorov-Smirnov show a value of 0.2, where this value is greater than 0.05, so it can be concluded that the pretest and posttest data are normally distributed.

Table 4. Homogeneity Test Results Using SPSS

Student Interest Results	Test of Homogeneity of Variances				
	Based on Mean	0.139	1	32	0.711
	Based on Median	0.159	1	32	0.693
	Based on Median and with adjusted df	0.159	1	30.68	0.693
	Based on trimmed mean	0.143	1	32	0.708

Based on the table above, it is known that the significance value is > 0.05 , so it can be concluded that the variance of the pretest and posttest data is the same or homogeneous. Once it is known that the data has a normal and homogeneous distribution, analysis is then carried out using a paired sample t test (table 5).

Table 5. Statistical Results of Paired Sample T Test

Pair 1	Paired Samples Statistics			
	Mean	N	Std. Deviation	Std. Error Mean
Pretest	71.82	17	6.35	1.54
Posttest	76.24	17	7.49	1.81

Based on the table 5, it is known that the average value of students' interest in learning pretest (71.82) $<$ posttest (76.24), thus it can be interpreted that descriptively there is a difference in the average interest in students learning in the pretest and posttest. To clarify this difference, see the following image.

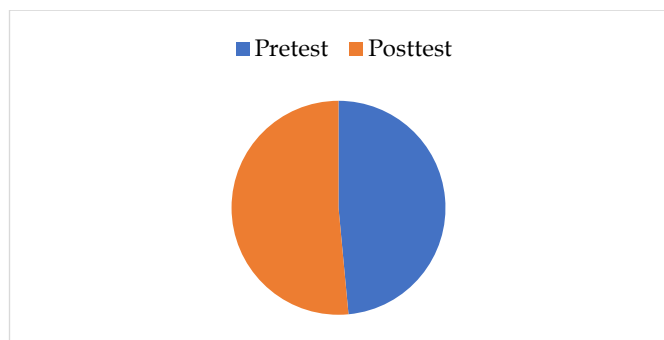


Figure 3. Pretest and posttest results of interest to learn

Table 7. Paired Sample T Test Results

		Paired Samples Test							
					95% Confidence Interval of the Difference				
Pretest	Posttest	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
		-4.41	3.60	0.875	-6.26	-2.55	-5.04	16	0.000

From the table above it is known that the Sig value (2-tailed) is $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. So, it can be concluded that there is an average difference between the pretest and posttest results, which means that the use of articulate storyline-based learning media can make students focus and teachers easily deliver learning material in an

interesting way so that it is effective in increasing students' interest in learning (Nugroho et al., 2020). The application and use of this learning media really supports student-centered learning and will foster students' interest in trying to learn more deeply (Prasetyo et al., 2015).

Students' interest in learning is influenced by internal factors and external factors. Internal factors such as initial abilities can influence a student's interest in learning, students who have good initial abilities tend to have a high interest in the learning material (Harefa et al., 2020). Apart from that, teacher teaching creativity can also influence students' interest in learning, the higher the creativity. Teachers in teaching will stimulate students' curiosity. High curiosity will increase students' interest in learning about material (Harefa et al., 2019). Several efforts that can be made to increase students' interest in learning include using various teaching methods (Sudirman, 2011), delivering lessons in an interesting and enjoyable manner, linking learning materials to events that occur in the surrounding environment and explaining their uses for students in the area the future (Amin et al., 2018).

Table 6. Correlation of Pretest and Posttest results

Pair 1	Paired Samples Correlations			
	Pretest & Posttest	N	Correlation	Sig.
		17	0.877	0.000

The table above is the result of a correlation test or relationship between the pretest and posttest results. Based on the data above, it is known that the correlation coefficient value is 0.877 with a significance value (Sig.) of 0.000, where the significance value is greater than the probability (0.05), so it can be said that there is a relationship between the pretest and posttest results.

Conclusion

From the results of the analysis, it is known that there was an increase of 4 students who were promoted from high to very high. The pretest and posttest results of learning interest show that learning using articulate storyline-based learning media has increased students' learning interest by 23.40%. The results of the paired t-test stated that the use of articulate storyline-based learning media was effective in increasing students' interest in learning.

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Investigation, H. R., D. S., and A. W.; formal analysis, H. R.; investigation, D. S and A. W.; resources, H. R and D. S; data curation, A. W.: writing – original draft preparation, H. R and D. S.; writing – review and editing, A. W.: visualization, H. R, and D. S.; supervision, A. W.; project administration, H. R.; funding acquisition, D. S. and A. W. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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