Journal of Advanced Sciences and Mathematics Education
Volume 1, Issue 1, 21 – 25
e_ISSN: 2798-1606
https://www.journal.foundae.com/index.php/jasme/index

ARIAS (Assurance, Relevance, Interest, Assessment, and Satisfaction) Learning Model and Learning Interest: How does it affect Critical Thinking?

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Article Info

Article history:

Received: May 18, 2021
Revised: May 28, 2021
Accepted: May 31, 2021

Keywords:

ARIAS learning model,
Critical Thinking Skills,
Learning Interest.

Abstract

This study aimed to determine whether 1) ARIAS learning model affected critical thinking skills; 2) students' learning interest category (high, medium, and low) affected critical thinking skills; and 3) there is an interaction between the learning model groups and the learning interest groups on critical thinking skills. This research was a quasi-experimental research with a 2 X 3 factorial research design. The instruments used to collect the data were a critical thinking test and a learning interest questionnaire. The data analysis technique used in this research was the analysis of the two-way variance of two unequal cell paths. According to the results of research and discussion, it was found that 1) there was an effect of the ARIAS learning model on students' critical thinking skills; 2) students' learning interest did not affect their critical thinking skills; 3) there was no interaction between the ARIAS learning model and learning interest on critical thinking skills.

To cite this article: Wawan, W. & Pamungkas, T. (2021). ARIAS (assurance, relevance, interest, assessment, and satisfaction) learning model and learning interest: how does it affect critical thinking?. *Journal of Advanced Sciences and Mathematics Education, 1*(1), 21 - 25

INTRODUCTION

The classroom learning process is one of the factors that influence the success or failure of an educational (Siagian 2016). Learning at schools aims to acquire the knowledge needed by students. Every human being has different characteristics. It can be seen from the skills that involve critical thinking, systematic thinking, logical thinking, creative thinking, effective collaboration in learning, especially learning mathematics (Putra 2016). Mathematics is essential in learning because it is the basis of logic or quantitative reasoning and solutions used in other lessons (Assidiqi 2015; Syazali and Et.al 2017). The education system in Indonesia is expected to equip students with learning skills and life skills, one of which is critical thinking skills (Qomariyah 2016). Teaching and developing critical thinking skills is essential to be developed in schools so that students can deal with various problems (Hasratuddin 2010).

Critical thinking skills have become a fundamental process that allows students to overcome various future problems in their environment and focus on deciding what they believe to be done (Hasratuddin 2010; Rosmaiyadi 2017). Besides basic mastery such as reading, writing, and science, the same attention also lies in critical thinking skills. Basic knowledge or mastery is not enough to meet the demands of future world developments (Mahmuzah 2015).

The critical thinking skills prepare students to become strong problem solvers, mature decision-makers, and never stop learning (Rosmaiyadi 2017). So far, the critical thinking skills has not penetrated students' souls so that it cannot function optimally in today's practical society (Hasratuddin 2010). Therefore, one of the school's functions is to provide a qualified workforce who is ready to deal with various problems in society. Thus, critical thinking skills are necessary to be included in the learning process (Rosmaiyadi 2017). The selection of the right teaching model will help students understand the material so that the learning process will not be monotonous (Supriadi, Sugiharta, and Wahyana 2018). In this research, the researchers tried to apply the Assurance, Relevance, Interest, Assessment, And

Satisfaction (ARIAS) learning model as an alternative to ease the students in absorbing the learning material. It will give a sense of pleasure for students in learning mathematics.

The ARIAS learning model instills a sense of confidence or trust in students (Praptinasari, Santosa, and Probosari 2012). It contains five components that are an integral part of learning activities. The first component is Assurance or confidence which relates to an attitude of belief in success or related to the hope of success. The second component is Relevance which relates to the students' current and existing experiences or current or future career needs. The third component is Interest which relates to the students' interest/attention. The fourth component is Assessment which is related to the assessment. Assessment is an essential part of learning that benefits both teachers and students. The last component is Satisfaction which is a reinforcement that can give students a sense of pride and satisfaction (Tilawan and Pramukantoro 2013).

Besides learning models, it is strongly suspected that other factors cause students to often find it difficult to learn, namely students' interest in learning. Interest is a feeling of liking, interest, attention, focus, perseverance, effort, knowledge, skills, motivation, behavior regulator, and the result of the interaction of a person or individual with certain content or activities (Nurhasanah and Sobandi 2016).

In general, the notion of interest in learning is an attitude of obedience to learning activities, both regarding the planning of the study schedule and the initiative to take the effort seriously (Nurhasanah and Sobandi 2016). Students' learning interest affects the enthusiasm and activeness of students in the learning process (Margunayasa, Putrayasa, and Syahruddin 2014). Interest can create enthusiasm so that the goals of an activity can be achieved (Muhson 2009). It should also be remembered that each student has a different learning interest. Some students have a high interest in learning and some are low. Every teacher must recognize students' learning interests so that the interests can be stimulated optimally to achieve learning success (Nurhasanah and Sobandi 2016).

METHOD

A research method is defined as a scientific way to obtain data with certain goals and uses (Sugiyono 2017). This study used the quantitative approach because the research data were in the form of numbers and used statistical analysis. This research was a quasi-experimental research with a posttest-only control group design. The independent variable of this research is the ARIAS learning model (X1) and the learning interest (X2). Furthermore, the dependent variable of this research was critical thinking skills (Y).

The data collecting techniques used in this research were critical thinking skills tests and students' learning interest questionnaires. Before these instruments were used, a pilot test had been performed on students. The research instrument was tested by measuring validity, reliability, difficulty level, and discriminating index (Arikunto 2013). Before the data analysis test, prerequisite tests were carried out using the normality test and homogeneity test (Novalia and Syazali 2014). The analysis technique used in this research was the analysis of the two-way variance of two unequal cell paths.

RESULTS and DISCUSSION

The following is the summary of students' critical thinking skills data.

Table 1. The Description of Students' Critical Thinking Skills

		Experimental	Control
N	Valid	25	25
	Missing	0	0
Mean		81.30	62.05
Median		80.00	57.50
Mode		100.00	55.00
Std. Deviation		11.27	12.40
Variance		127.14	153.98
Range		37.50	45.00
Minimum		62.50	42.50
Maximum		100.00	87.50

Table 1 displays the results of the descriptive analysis to illustrate that the students' average critical thinking skills differ between the experimental class and the control class. Furthermore, before

testing the hypothesis, the normality test and the homogeneity test were first performed. The normality test was conducted to determine whether the population of data was normally distributed or not. Table 2 displays the results of the normality test.

Table 2. The Normality Test Results

	Learning Model	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistics	df	Sig.
Critical Thinking	ARIAS Learning Model	.200.939	25	*	.112	25	.142
	Conventional Learning Model	.084 .957.358	25			25	.163
Learning Interest	ARIAS Model Learning	.200.982.9 15	25	*		25	.098
	Conventional Learning Model	.132	25	.200*	.935	25	.115

Table 2 contains the results of the normality test. The significant value (Sig) of the experimental class for critical thinking skills was 0.142 and the control class was 0.358. Therefore, the significant values of the experimental and control classes were higher than 0.05. It can be concluded that the data had been distributed normally. Furthermore, in the normality test on learning interest, the significant value of the experimental class was 0.915 and the control class was 0.115. It means that the significant values of the experimental and control classes were higher than 0.05. So, it can be concluded that the data had been normally distributed

The homogeneity test was carried out on the data of students' critical thinking skills and learning interests. Table 3 shows the results of the homogeneity test.

Table 3. The Results of Homogeneity Test

		Levene Statistical	df1	df2	Sig.
Critical Thinking	Based on Mean	.471	1	48	.496
	Based on Median	.197	1	48	.659
	Based on Median and with adjusted df	.197	1	45.254	.659
	Based on trimmed mean	.442	1	48	.510
Learning Interest	Based on Mean	3.672	1	48	.061
	Based on Median	2,637	1	48	.111
	Based on Median and with adjusted df	2,637	1	45 361	.111
	trimmed mean Based on	3,440	1	48	.070

Based on Table 3, the significant value of the critical thinking skills was 0,496, while the significant value of learning interest was 0.061. since the significant values of critical thinking skills and learning interest were higher than 0.05, the data can be declared as homogeneous. The next test was the hypothesis test using a parametric statistic test, namely the two-way analysis of variance test (ANOVA). The results of the two-way ANOVA with two unequal cell paths can be seen in the following table:

Table 4. The Results of Two-Way ANOVA with Unequal Cells

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4999.715[a]	5	999.943	6.900	.000	.439
Intercept	235711.619	1	235711.619	1626.471	.000	.974
Learning Interest	98.702	2	49.351	.341	.713	.015
Learning Model	4758.880	1	4758.880	32.838	.000	.427
Learning Interest* Learning Model	255.761	2	127.880	.882	.421	.039
Error	6376.571	44	144.922			
Total	268263.070	50				
Corrected Total	11376.286	49				

Based on Table 4, the two-way ANOVA testing discovered that there was an effect of the ARIAS learning model on students' critical thinking skills because the significant value was higher than 0.05. Then, it was also discovered that there was no influence of learning interest on students' critical thinking

skills because the significant value was higher than 0.05. Furthermore, the two-way ANOVA analysis found that there was no interaction between the ARIAS learning model and learning interest on students' critical thinking skills because the significance value was higher than 0.05.

This research had two variables that become the object of research, namely the independent variables (ARIAS learning model and students' learning interest) and the dependent variable (critical thinking skills). The ARIAS learning model provides the widest possible opportunity for students to develop their mathematical knowledge. This learning model also requires students to be active so that they can produce something on a topic related to mathematics and develop deeper knowledge related to mathematics. Group work in completing projects can improve students' communication skills and can foster students' abilities. Thus, they can solve existing problems. Based on the explanation, there was an effect of the ARIAS learning model on students' critical thinking skills.

Based on the calculation of the two-way ANOVA, there was no effect of learning interest on critical thinking skills because the significant value was higher than 0.05. There was no significant difference between students with low and moderate learning interest, low and high learning interest, and moderate and high learning interest on their critical thinking skills.

Another conclusion of the two-way ANOVA is that there was no interaction between the ARIAS learning model and learning interest on critical thinking skills. Theoretically, the learning model, optimal learning resources, and interest in learning mathematics in class affect students' critical thinking skills. In conventional learning, students were more passive. They only listened and paid attention to the teacher during the learning process.

However, this research showed that there was no combination or relationship between the learning model and learning interest on students' critical thinking skills. One of the factors that might cause this result is students' dishonesty and seriousness in filling out the questionnaires. They might think that there is no effect whatsoever when filling out questionnaires inappropriately.

CONCLUSION

Based on the results of the analysis and discussion, it can be concluded that there was an effect of the ARIAS learning model on critical thinking skills. Students who were treated with the ARIAS learning model had better mathematical critical thinking skills than students who were treated with the conventional learning model. The next conclusion is the category of the learning interest (high, medium, and low) does not affect critical thinking skills. It means that students with high, medium or low learning interest had the same critical thinking skills. Then, the last conclusion is that there was no interaction between the group of learning models and the groups of learning interest on students' mathematical critical thinking skills.

Based on the results of the research, the researchers suggest to teachers apply the ARIAS learning model as an alternative to improve students' critical thinking skills. For further research, the researchers recommend looking at the improvement of each indicator of critical thinking skills and other abilities that can be applied through the ARIAS learning model. Hopefully, this research can provide benefits and contribute to the teachers in general and the researchers in particular.

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