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The Influence of Learning Styles, Attitudes, and Interests on Learning Outcomes in Mathematics Subjects in Elementary Schools

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ABSTRACT

The study used an experimental method with a quantitative approach. This study has variables (X) namely learning styles, attitudes, and interests and variables (Y) namely learning outcomes in mathematics subjects. This study used a population of all students in the elementary school and one class, namely the experimental class, which was sampled using Purposive Sampling technique. The design used in the one group design, the research subjects were given pre-test and post-test treatment. The data collection technique in this study was a test. And test the instrument by carrying out the validity test and reliability test. The data analysis techniques in this study are using normality, homogeneity, and hypothesis testing. The results of the F test hypothesis test show that if the sig value <0 and F table, then there is a relationship between variable X and variable Y. If the sig value is greater than 0.05 or F count is greater than F table, then there is no impact of variable X on variable Y. In the F test with a value of 19.131 which is greater than 3.89, we can conclude that the relationship between variable X and variable Y together has an important impact. In addition, with a (sig) value of 0.001 which is smaller than 0.05, we can conclude that there is a significant effect of variable X on variable Y simultaneously. Thus, Ha is accepted while Ho is rejected. It can be concluded "there is an influence of learning styles, attitudes, and interests on learning outcomes in mathematics subjects in elementary schools".

Keywords *Attitude Style Learning Interest, Learning Outcomes, Mathematics Subjects*
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INTRODUCTION

In some books on education, the word educator is often used as a synonym for the word teacher. According to the author Hadari Nawawi, quoted by Abuddin Nata, a teacher is someone who carries out the task of teaching or providing knowledge to their students in the classroom (Arni et al, 2022) More specifically, he explains that a referring teacher is not only in charge

of teaching in the classroom to convey knowledge to students, but also has an active and creative role as a member of society in directing the development of students in order to become a contributing part of an active and creative society as an adult. Interpreting this sentence shows that there is a huge burden that must be borne by an educator, especially a teacher. Assigning students to give presentations in front of the class not only aims to provide learning experiences, but also helps in the process of forming students' maturity (Fauziyati, 2018).

Abuddin Nata states that in learning activities in the classroom, a teacher must have the ability in various roles. These roles include being a motivator or driver, designer, provider of learning materials and opportunities, liaison, guide, assessor, and justifier. For example, as a motivator, a teacher can be a motivator or driver for students to learn (Fauziyati, 2018). A learner is someone who is experiencing personal progress and growth. Each individual participating in the education process has their own unique potential such as special abilities, interests, needs and other factors. In this framework, learners need to experience the process of education and teaching in order to develop themselves and develop optimally (Hanifah et al., 2020)

Thus, learning styles, attitudes and interests to achieve optimal education implementation, it is important for educators to know and understand learners. This will help them to plan the implementation of education effectively. If each individual works together and supports each other, then it will also work the other way around. Likewise, if each learner's learning styles, attitudes and interests are understood then each learner will feel cared for and will carry out learning enjoyably without pressure.

Interviews that have been conducted at elementary schools with homeroom teachers found that the problem found is that students feel less enthusiastic during the learning process. Students feel that the learning process is boring this is because the teacher does not understand the styles, attitudes, and interests of students, so the teacher in the learning process still uses the lecture learning model and does not use the media, the students only pay close attention and write the information conveyed by the teacher, the lack of media utilization during learning which results in students having difficulty when learning learning learning material. So the factor is that the results obtained by students are still low and learning outcomes are not optimal. Teachers also understand that media in social studies learning can help students in learning activities by improving student learning outcomes. So that the need to know the style, attitude, and interest of learning students can be a solution so that the increase in learning outcomes in mathematics subjects.

Based on the above problems, understanding students' styles, attitudes, and interests can overcome the learning difficulties experienced by students in mathematics. Rudini & Saputra (2022) a person has a unique learning style in taking, organizing, and processing the information he receives. The key to student success in learning is using the appropriate learning style. Hamna & BK (2020) it is important not to get hung up on just one learning style. In terms especially related to words or sounds, of course, it can produce many variations in describing meaning. In the learning process, it is important for teachers to help and guide students in identifying the most suitable learning style for them, so that they can achieve maximum learning results (Sitti Nuralan et al., 2022).

Evidence of student learning outcomes can also be observed through how well they remember the material during the learning process, teachers teach various things and how they apply them in everyday life and their ability to solve existing problems. A teacher can use one of the methods in supporting the learning process that suits the needs of students is by applying various types of learning, such as using the right models, strategies, methods, and learning media. If the teacher is able to present different learning methods and adapted to the way of learning, attitudes, and interests of students, this can have a positive effect that causes an increase in student learning achievement and helps students understand the subject matter taught by the educator (Hafizha et al., 2022). Learning attitude refers to an individual's tendency to behave when acquiring knowledge in the academic field. Learning attitudes include positive or negative feelings, agreement or disagreement, liking or disliking lecturers, objectives, materials, tasks, etc. Learning attitudes can be understood as an individual's state of mind and behavior when he or she tries to gain knowledge and practice in academic-related fields. Learning attitude can be understood as an individual's state of mind and behavior as he or she tries to gain knowledge and practice in areas related to academic education. The thoughts and views that learners have in dealing with objects, such as views on school or the lessons at hand. Improving learners' attitudes has a very important role. From that, it can be concluded that learning attitude is the motivation that drives a person in academic activities. This attitude is obtained from experiences in life that lead to good or bad behavior, and feelings of pleasure or displeasure (Hidayat, 2017).

Interest is a person's interest and desire to gain a deeper understanding and learn about something. Interest develops because there is attention to an object, where the desire to know, learn, and prove also grows further. Interest is an individual's awareness of an object, situation, or problem that is connected to himself. Based on the introduction above, the researcher has an interest in conducting a study with a topic entitled: "the influence of learning styles,

attitudes, and interests on learning outcomes in mathematics subjects in elementary schools".

RESEARCH METHODE

The study used an experimental method with a quantitative approach. Quantitative research is a method of obtaining knowledge by utilizing numerical data as a means of obtaining information about what is wanted to know. This study has variable (X) which is learning style, attitude, and interest and variable (Y) which is learning outcome in mathematics subject. This study used the population of all students in the elementary school and one class, the experimental class, as the sample. The design applied one group design is a research method where one group of research subjects is given pretest and posttest treatment. This display can be explained in the following way::

Table 1.
Form of Design

Pretest	Treatmen	Posttest
O1	X	O2

In this study, data was collected through the use of tests as the technique used. Experimental activities were conducted to test the validity of the instrument through the use of product moment correlation formula and the reliability of the instrument through the use of Cronbach's Alpha formula. In this study, the data processing method involves the use of analytical techniques such as normality test, homogeneity test, and hypothesis test.

RESULT AND DISCUSSION

The study has been implemented smoothly at SD Negeri 224 Palembang with the expected goal of knowing and studying "the influence of learning styles, attitudes, and interests on learning outcomes in mathematics subjects in elementary schools". This activity was implemented in one week in December 2023. The questions tested were 10 which had been validated by the lecturers and teachers concerned and had been tested on students with the results:

Table 2. Validation

Item	r Count	r table
1	0,460	0,396
2	0,764	0,396
3	0,763	0,396
4	0,619	0,396

5	0,693	0,396
6	0,491	0,396
7	0,693	0,396
8	0,693	0,396
9	0,781	0,396
10	0,526	0,396

An indicator that describes the validity or accuracy of a research instrument. Validity testing relates to the extent to which a tool or instrument can fulfill its duties effectively. From the table, it can be seen that all questions from number 1 to 10 the rcount value has a size greater than the rtable value. This shows that all questions are considered valid and can be used as research instruments. After the validity has been tested, the next step is to test the reliability. The reliability of a measuring instrument is the ability of the tool to make measurements in accordance with the desired measurement objectives. This means that when a measuring instrument is used, the measurement results will always be consistent and the same.

Table 3. Reliability

Value	**Description**
0.843	Reliabel

Referring to the data in the given table, a reliability value of 0.843 was found. This figure shows that the items have been believed to have a high level of reliability, so they can be considered suitable for testing. After getting a valid question and the question is also reliable, the question can be declared feasible and ready to be tested on students who become samples. There are pretest and posttest values when conducting research:

Table 4.
Pretest dan posttest

Item	**Initials**	**Value**	
		Pretest	***Posttest***
1	Adelia Maharani	40	70
2	Aidil Rama	50	80
3	Ainslee. N.M	70	90
4	Alla Oktaviani	60	100
5	Asyifa Humairah	60	90
6	Caroline Aggatan	50	50
7	Casey Sevia A	50	80

Item	Initials	Value	
		Pretest	*Posttest*
8	Cika Ardha	20	50
9	Cindy Amellia	50	80
10	Citra Hasri Charisty	60	80
11	Daffa	80	100
12	Defi Ana Zeiyan	80	100
13	Dewi Tri Yana	70	90
14	Dimas Aprian W	50	80
15	Dinda Aisya Azzahra	40	80
16	Dwi Anjelika	80	100
17	Fakhirah Rizki A	40	70
18	Fatimah K. N	30	70
19	Fatimah Rahma Tania	60	80
20	Ferro Ikhsan Saputra	30	60
21	Giri Bakri	70	90
22	Juriter	70	90
23	Selvi Pericilianggraeni	50	70
24	Zahira Zahiyah Putri S	40	70
Jumlah		**1300**	**1920**
Rata-rata		**50,17**	**80,00**

According to the data table, there is a difference between the pretest and posttest scores. The lowest score on the initial test was 20 and the highest score was 80. The average initial proficiency score was 54.17. 70 is the cut-off score that must be achieved by test takers to be considered passed. There were 7 students who managed to meet the minimum score limit (KKM) while 17 students did not manage to meet the minimum score limit. In the posttest score, there were students with the lowest score in the final test was 50 and the highest score was 100. The average posttest score was 80.00. There were 22 students who reached the minimum passing score, while 2 did not reach the minimum passing score.

The data normality test is useful in evaluating the distribution of the data obtained, so normality testing is carried out. To test the normality of the data using the Kolmogorov Smirnov test method.

Table 5.
Normality Test

Tests of Normality						
	Kolmogrov Smirnov			Shapiro Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.140	24	.200	.953	24	.312
Posttest	.184	24	.034	.923	24	.067

By using the Kolmogorov-Smirnov method to test normality, it can be said that the data has a normal distribution if the significance value (sig) exceeds 0.05. From the results of the analysis, it can be seen that the significance value for pretests is 0.200 and posttests is 0.034. The analyzed data has a normal distribution because both values exceed 0.05. After running the data normality test, it is necessary to test the homogeneity of the data using the same sample from the population.

Table 6.
Homogeneity Test

Test of Homogeneity of Variance[a,b]					
		Levene Statistic	df1	df2	Sig.
Learning Outcomes Students	*Based on Mean*	1,843	3	48	,076
	Based on Median	,642	3	48	,078
	Based on Median and with adjusted df	,642	3	43,681	,078
	Based on trimmed mean	2,438		48	,075

Based on the homogeneity analysis using SPSS Version 25, data is considered homogeneous if the significant value (Sig) on the basic average is higher than 0.05. Therefore, it can be concluded that the results of the homogeneity calculation of the experimental class posttest data show that the value of 0.76 is greater than 0.05, which indicates that the samples have a similar level of variation (homogeneous). After evaluating compliance with normal distribution and data uniformity, the next step is to conduct hypothesis testing.

Table 7.
Hypothesis Test
ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1400,805	1	1400,805	19,131	,001[b]
Residual	2416,338	23	73,222		
Total	3817,143		24		

The results of the F test hypothesis test show that if the sig value is <0 and the F table. In the F test with a value of 19.131 which is greater than 3.89, we can conclude that there is an important relationship between variable X and variable Y together. In addition, with a (sig) value of 0.001 which is smaller than 0.05, we can conclude that variable X has an important influence on variable Y. Thus, Ha is accepted while Ho is rejected.

Based on previous relevant research by Irfansyah & Listiadi (2021) The results showed that learning styles, learning interests, learning motivation, and learning facilities have a positive and significant impact on student learning achievement in Basic Accounting subjects in class X AKL Expertise Competency, SMKN 1 Magetan. Furthermore, there are various factors that together, namely learning styles, learning interests, learning motivation, and learning facilities, play an important role and have a significant positive impact on student learning achievement in Basic Accounting subjects, class X, AKL Expertise Competency department at SMK Negeri 1 Magetan.

Study by Prasetyo et al (2021) Based on the results of the F test, with a calculated F value of 3.721 which is greater than the F table of 2.92, it can be concluded that the hypothesis is accepted. This means "a positive and important influence has been observed between the way students learn, interest in learning, and learning facilities on students' social studies learning achievement". Individualized learning methods are learning methods or situations preferred by students (Syarfuni & Verawati, 2017). Teachers also know that each student has the best method of learning the latest information. Understanding variations in students' learning styles can make it easier for teachers to approach students through knowledge and understanding of the various learning styles that exist. During this application, it was also found that most students had an understanding of their preferred learning style when they were about to start learning. This also influences and supports their learning achievement. If a student chooses a learning method that can match their habits and personality, it will give them the ability to learn smoothly and excitingly,

and will also be easier to understand. Applying learning methods that are fun and easy to understand will be a good step in the teaching process in the student's classroom. According to Harlinda Syofyan (2017), a person's success in learning depends on their suitable learning style. In learning activities, it is important for teachers to provide assistance and direction to students in identifying learning styles that are suitable for them so that learning objectives can be achieved properly.

Also supported by research (Nurohmah et al., 2022) Based on causal research with a quantitative approach in chapter IV, it can be concluded that learning style has a significant positive influence on the mathematics learning outcomes of fifth grade students at SDN Sukaharja 01, Bogor Regency in the 2021/2022 academic year. Learning styles have a beneficial effect on the mathematics learning achievement of fifth grade students at SDN Sukaharja 01, this can be seen from the comparison of the tcount (2.996) and ttable (2.131) values.

CONCLUSION

The results of the F test hypothesis test show that if the sig value is <0 and F table, then there is an influence between the two variables. If the sig value is greater than 0.05 or F count is greater than F table, then there is no impact of variable X on variable Y. In the F test with a value of 19.131 which is greater than 3.89, we can conclude that there is an important influence between variable X and variable Y together. In addition, with a (sig) value of 0.001 which is smaller than 0.05, we can conclude that there is an important influence between variable X and variable Y together. Thus, Ha is accepted while Ho is rejected.

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