



## The Effect of Learning Style and Family Environment on Learning Outcomes of Science Subjects in Elementary School

Yusni Arni<sup>1</sup>, Ahmad Tolib Amrullah<sup>2</sup>, Lingga Ariyandi<sup>3</sup>, Albert Samuel S<sup>4</sup>

<sup>1,2,3,4</sup> Universitas PGRI Palembang, Indonesia

Corresponding Author:  [amrullahsukimin@gmail.com](mailto:amrullahsukimin@gmail.com)

### ABSTRACT

The study was conducted using an experimental method with a quantitative approach. This study has two variables, namely variable X learning styles and family environment and variable Y learning outcomes in science subjects. The population in this study were all fourth grade classes totaling 75 students, and the sample was class IV.A as a class without treatment and IV.B as a class with treatment so that the total sample was 50 students. Researchers conducted validation on lecturers and teachers concerned, the results were tested on respondents. Researchers continued the reliability test to determine whether the questions were reliable or not. The data analysis applied is normality test, homogeneity test, and hypothesis testing. The result of the significance value (2-tailed) is 0.000. This shows that the significance value is smaller than the specified significance level of 0.05. Therefore, the data obtained is considered significant. Furthermore, the calculated t value is 7.090. Compare it with the t table value with a degree of freedom (df) of 48 and a significance level of 0.05. It is found that the t table value is 1.677. In conclusion, the calculated t value obtained is much greater than the t table value with the specified significance level. This indicates that there is a significant difference between the observed data and the proposed hypothesis. So it can be concluded that the t-count value (7.090) is greater than the t-table value (1.677), so the t-count value is greater than the t-table value (1.677).

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## INTRODUCTION

Education is a deliberate and planned effort to create a learning atmosphere and learning process so that students can actively activate their potential. The purpose of this is so that they have inner strength, good self-control, a strong personality, intelligence, good morality, and skills that are important for themselves, communities, countries, and nations. The purpose of education can be concluded as an effort to shape one's personality through a series of organized and planned steps (Wasis, 2022).

According to Poerwadarminta, education is an effort to change human maturity aimed at attitudes and actions displayed by individuals or groups through the process of teaching and training. Here, education is explained as a series of stages in which a person is taught and trained to change attitudes and behaviors in order to become mature. According to (Arni et al, 2022), education includes all learning processes that take place in various environments and throughout a person's life. Education is a deliberate effort to develop individuals, groups and communities in order to acquire values, skills and knowledge that are beneficial to improving the quality of life. This approach is a key factor in the acquisition of knowledge by a person, and in the end education becomes an important factor that has a significant effect on the progress of human life (Alia Akhmad, 2021).

The government has a great responsibility in achieving success in providing quality education. Education is currently considered by the government as the main determining factor in determining the future of a country. An aspect that is often forgotten in educational institutions (schools) is the teaching and learning process, which is the main key in improving quality. Activities in the teaching and learning process have the potential to produce individuals who exhibit behaviors that are in line with the traits possessed by the nation. There is no more valuable money in efforts to improve the quality of education than keeping the learning process running well. In carrying out educational tasks, the role of teachers has a huge and irreplaceable importance. In addition, there are other factors such as students, learning content, spirit motivation, and supporting facilities that also need to be considered. For this reason, it is important for educators to have intonation and creativity as the main factors in the success of education in improving the quality of human life. One way to achieve this goal is by developing new ideas and creating new solutions in learning methods (AS et al., 2024).

A student is an entity that is undergoing growth and development. Each individual in the educational group has a variety of different potentials, ranging from talents, interests, needs, and other factors. Therefore, students need education and teaching in order to develop and grow. In today's world of education, the importance of considering and paying attention to differences in student characteristics in the importance of the learning and teaching process cannot be ignored. For this reason, it is important for every school to adopt an approach that suits the character, learning style, and individual intelligence of each learner in carrying out learning activities. This is in accordance with the opinion of Yeti and Mumuh (2014: 72) who state that students in the educational process are the main focus, where all matters related to educational activities are addressed to them. Observing the above information, knowledge of the characteristics, learning styles and intelligence of students is important for those involved in education, especially educators who directly teach these students. It is

important for school colleagues to be able to appreciate the different characteristics among fellow learners. Teachers have the ability to demonstrate an open and respectful attitude so that students feel happy at school and learn to value and enjoy the diversity among them without being skeptical. In order for education implementation planning to be done optimally, it is important for educator implementers to know and understand the characteristics, learning styles and intelligence of learners. Therefore, if we understand each learner's characteristics, they will feel valued and it will be more enjoyable to carry out the learning process in a relaxed and unstressed manner (Hanifah et al., 2020).

Based on interviews that have been conducted with one of the homeroom teachers and received information that the learning outcomes of students' science subjects are unsatisfactory or quite low. When observations are made, this is due to the daily teaching of teachers only based on or using books. So students are less than optimal in receiving the learning delivered. Teachers also rarely use media and also teachers only teach with the same learning style. So that students learn and receive the same things as other students, then the family environment also affects their learning.

Based on these problems, a solution is needed to overcome them, namely by looking at and observing students' learning styles and family environment. The way individuals absorb, organize and process the information received is by using the most practical learning style. The importance of the right learning style is a determining factor for student success in the learning process. By having an understanding of this, students can take in and process information more effectively, making the learning process easier according to their preferred learning style (Rambe & Yarni, 2019). Learning styles are strategies chosen by individuals to activate their abilities. Therefore, it can be summarized that learning style is the preferred method that individuals have in gaining understanding of the information given to them. Each person has a different learning style (Steviana et al., 2022).

One of the factors that influence individual growth besides themselves is the family environment. The family is the first place a child is introduced to education and direction after birth. The family is also the main environment that provides teaching to children (Susanti, 2021). The family environment is the environment in which children grow up and initially experience their lives, so children's observations and experiences within the family can affect their emotional growth and development. The household has a very important role in parenting, as children first see and experience their family before anyone else. Family education continues to play an important role despite the many educational institutions such as kindergartens, schools and colleges that exist. Likewise, the improvement of cultural, health, political, religious institutions will not change the important role of family education (Noviansah & Maemunah, 2020).

Based on the above explanation, the researcher volunteered to carry out research with the title: "The Effect of Learning Style and Family Environment on Learning Outcomes of Science Subjects in Elementary School".

## RESEARCH METHOD

The study was conducted using an experimental method with a quantitative approach. quantitative is research that uses numbers. This study has two variables, namely variable X learning styles and family environment and variable Y learning outcomes in science subjects. The population in this study were all fourth grade classes totaling 75 students, and the sample was class IV.A as a class without treatment and IV.B as a class with treatment so that the total sample was 50 students. The application in the implementation of this study is a pretest to determine the initial ability, treatment, namely treatment using the appropriate learning style and without learning style, and posttest to determine the final ability. Pretest and posttest were collected using tests, then researchers also carried out observations, namely observing the learning style and family environment of students, and also conducted documentation as data collection in the form of images. Researchers conducted validation on lecturers and teachers concerned, the results were tested on respondents. If the instrument is declared valid, the researcher continues the reliability test to determine whether the question is reliable or not. The data analysis applied is normality test, homogeneity test, and hypothesis test.

## RESULTS AND DISCUSSION

The research was conducted at SD Negeri 22 Palembang which is located at Puncak Sekuning Street. The research was conducted in January 2024 which aims to determine "the effect of learning styles and family environment on learning outcomes of science subjects in elementary school" with a population of all grade IV, and the sample was randomly selected. Class IV.A as the control group and class IV.B as the experimental class. For more clarity, consider the table below:

**Table 1.**  
**Population and Sample**

Class	Students		Total	As
	Male	Female		
IV.A	16	9	25	Control
IV.B	16	9	25	Experiment
IV.C	17	8	25	
Total			75	

To measure the extent to which the data recorded in this study are in accordance with the facts obtained from the object of research, validity is used as an explanation. In order for this research object to be explored validly, researchers need to verify that the testing instruments used are appropriate (Sugiyono, 2019). Note the results of the validity that has been done

**Table 2. Validity**

Number	r <sub>hitung</sub>	r <sub>tabel</sub>
1	0,506	0,444
2	0,596	0,444
3	0,466	0,444
4	0,556	0,444
5	0,543	0,444
6	0,460	0,444
7	0,532	0,444
8	0,460	0,444
9	0,506	0,444
10	0,584	0,444

r<sub>tabel</sub> has a value of 0.444, meaning that the r<sub>count</sub> value must be higher than the r<sub>tabel</sub>. When considering the results of r<sub>count</sub> on 10 questions, the value exceeds 0.444. It can be concluded that the 10 questions that have been tested are valid and can proceed to the reliability test to measure whether the data is reliable or not. Here are the results:

**Table 3. Reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
0,745	10

The Cronbach's Alpha value is 0.6, so for the data to be reliable it must have a value equal to or above 0.6. It can be noted in the table that the Cronbach's Alpha value of 0.745 is greater than 0.6. The data can be concluded to be reliable and can be used to conduct research. after doing the test, then obtained:

**Table 4.**

**Experiment Class**

Number	Value of Experimental Class
1	80
2	70
3	100
4	90

Number	Value of Experimental Class
5	90
6	100
7	90
8	80
9	100
10	90
11	70
12	80
13	90
14	80
15	90
16	100
17	80
18	80
19	100
20	80
21	70
22	100
23	90
24	80
25	90
<b>Average</b>	<b>90</b>

The table above explains that the students who completed were 25 children. So that the completeness with a percentage of 100% and has an average of 90. The following are the results of the control class with the application without treatment

**Table 5.**  
**Control Class**

Number	Control Class Score
1	70
2	80
3	60
4	50
5	70
6	60
7	70
8	60
9	80

Number	Control Class Score
10	70
11	60
12	80
13	70
14	60
15	80
16	60
17	70
18	50
19	60
20	70
21	80
22	70
23	70
24	80
25	70
<b>Average</b>	<b>70</b>

Table 5 has an average of 70, 15 students completed, but there were 10 students who did not complete with a percentage of only 60%. When comparing the two groups, the experimental class has an influence when teaching with learning styles and family environment.

The normality test is applied to evaluate existing data. Whether the data includes a normal distribution or not.

**Table 8.**  
**Normality Testing**

	Tests of Normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
control class	,202	25	,10	,877	25	,006
Experiment class	,194	25	,16	,880	25	,007

a. Lilliefors Significance Correction

From the results of the normality test on the posttest class of the experimental group which showed a significant result of  $0.16 > 0.05$ , it can be concluded that the distribution of the experimental posttest class is normal. Based on the significant result of  $0.10 > 0.05$  in the control posttest class, the distribution in the control posttest class

tends to be normal. It is important to conduct a homogeneity test to ensure that the variants in the sample groups formed are the same. The following are the test results:

**Table 9.**

**Homogeneity Testing**

		Test of Homogeneity of Variances			
		Levene Statistic	df1	df2	Sig.
student learning outcomes	Based on Mean	,255	1	48	,616
	Based on Median	,202	1	48	,655
	Based on Median and with adjusted df	,202	1	47,878	,655
	Based on trimmed mean	,271	1	48	,605

Based on the table data given, it can be concluded that the sig Based On Mean is  $0.616 > 0.05$ . From these results the variance of the control class posttest data and the experimental class posttest data has the same level of uniformity or Homogeneous. Then, to analyze the extent of the influence of learning styles and family environment on the learning success of grade IV students. So that this research is tested by applying statistical methods, namely the independent sample t-test.

**Table 10.**

**Hypothesis Testing**

Independent Samples Test										
		Levene's Test for Equality of Variances				t-test for Equality of Means				
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
student learning outcomes	Equal variance assumed	,255	,616	7,090	48	,000	19,20000	2,70801	-	-
	Unequal variance assumed								24,6448	13,75518



Equal	7,09	47,79	,000	19,20000	2,70801	-	-
variance	0	5				24,6454	13,7545
s not						3	7
assume							
d.							

The test result sig. (2-tailed) is  $0.000 < 0.05$ . Therefore, the data obtained is considered significant. Then, the calculated t value is equal to 7.090, (df) 48 and a significance level of 0.05. It was found that the t table value was 1.677. In conclusion, the obtained t measurement results far exceed the t value listed in the table with the specified significance error level. This indicates that there is a significant difference between the observed data and the proposed hypothesis. It can be concluded that the tcount value (7.090) is greater than the ttable value (1.677), so the tcount value is considered significant. Therefore, the alternative hypothesis (Ha) is acceptable while the null hypothesis (Ho) is rejected. Based on this, the hypothesis reveals that there is an "influence of learning styles and family environment on learning outcomes in science subjects in elementary school".

This research is supported by previous researchers, namely (Desiana et al., 2020) a strong relationship was seen between student learning styles and student social studies learning achievement. There is an important relationship between the family environment and the way students learn which affects students' social studies learning outcomes. The results of this study suggest that students increase awareness of their learning styles to match their own abilities, so that they can achieve maximum learning outcomes. Teachers and parents need to pay more attention to how students learn and the education provided at home. This can have an impact on student learning outcomes and achieve good and optimal learning achievement.

Second by (Maheni, 2019) there is a favorable relationship between learning styles and student learning achievement in the Undiksha Economics Education Department. If students are adjusted to their learning style, their learning achievement will improve. Second, student learning outcomes in the Undiksha Department of Economic Education are positively influenced by the peer environment. This indicates that the more conducive the social environment around students, the more their learning achievement will increase. In the Department of Economic Education Undiksha, student learning outcomes are positively influenced by learning styles and interaction with peers. The text suggests that if students are given lessons that suit their learning style and if their social environment is better, then their learning outcomes will also be better.

Also supported by (Safira et al., 2018) referring to the results of existing analysis, it can be concluded that visual learning style, learning environment, and learning interest have a significant and positive influence on Integrated Social Studies learning

achievement. The results of this study can be used as a reference in school coaching and development efforts in the future.

## CONCLUSION

The test result sig. (2-tailed) is  $0.000 < 0.05$ . Therefore, the data obtained is considered significant. Then, the calculated t value is equal to 7.090, (df) 48 and a significance level of 0.05. It was found that the t table value was 1.677. In conclusion, the obtained t measurement results far exceed the t value listed in the table with the specified significance error level. This indicates that there is a significant difference between the observed data and the proposed hypothesis. It can be concluded that the tcount value (7.090) is greater than the ttable value (1.677), so the tcount value is considered significant. Therefore, the alternative hypothesis ( $H_a$ ) is acceptable while the null hypothesis ( $H_o$ ) is rejected. Based on this, the hypothesis reveals that there is an "effect of learning style and family environment on learning outcomes of science subjects in elementary school".

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