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THE INFLUENCE OF STRATEGY RELATING, EXPERIENCING, APPLYING, COOPERATING, TRANSFERRING (REACT) ON SCIENCE LEARNING OUTCOMES OF FIFTH GRADE ELEMENTARY STUDENTS VIEWED FROM CRITICAL THINKING ABILITY

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Abstract

This study was conducted with the aim of analyzing the influence of the use of Relating, Experiencing, Applying, Cooperating, and Transferring (REACT) strategies on science learning outcomes in terms of students' critical thinking skills. In this research, it discusses the importance of teacher accuracy in choosing learning strategies, namely between REACT and conventional strategies and the importance of teachers to know student characteristics, one of which is the ability to think critically in improving student learning outcomes. The population in this study was all fifth grade elementary school students in Ciruas District, Serang Regency, Banten Province. Samples were taken using purposive sampling techniques totaling 62 students. Data on science learning outcomes are collected using the test method. Meanwhile, data on students' critical thinking ability were collected using the questionnaire method as preliminary data to identify students' critical thinking abilities. The data were analyzed using ANOVA with a 2 x 2 treatment design and continued using the Tukey test. The results showed that: (1) there was a difference in the influence between the use of REACT learning strategies compared to conventional learning strategies on science learning outcomes ($F=59.294$; $p<0.05$), (2) there were differences in science learning outcomes between students who had high critical thinking skills and students who had low critical thinking skills ($F=6,588$; $p <0.05$), (3) there is an influence of interaction between learning strategies and students' critical thinking ability on student science learning outcomes ($F=80.706$; $p<0.05$), (4) for students who have high critical thinking skills, science learning outcomes are higher when taught with REACT strategies compared to conventional strategies ($F=16.684$; $p<0.05$), and (5) for students who have low critical thinking skills, science learning outcomes are absent differences between students taught with conventional strategies compared to REACT strategies ($F=1.283$; $p>0.05$). So, it can be concluded that there is an interaction between learning strategies and students' critical thinking skills and to improve science learning outcomes in fifth grade elementary schools, the use of REACT strategies is more appropriately taught to students who have high critical thinking skills.

Keywords: REACT, Critical Thinking Ability, Science Learning Outcomes

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INTRODUCTION

Various problems and developments of Science and Technology in human life have been answered by the growth of the natural sciences. To be able to keep up with the modern era's fast development and to be able to instill a competitive spirit in this era of knowledge and technology, the results of learning science are an important aspect for students at the elementary school level. The process of achieving optimal science learning outcomes cannot run by itself, because the accomplishment of learning objectives for students is always linked to the factors that influence it.

In order to create learning environments that can foster students' creativity, instructors play a crucial role. One such environment is the study of science. This is consistent with Alawiyah (2013) assertion that competent teachers are essential for motivating or offering encouragement for pupils to be eager to learn on their own. Additionally, it agrees with the viewpoint of Istafada (2013) who explained that teachers are required to apply science supported by competence, to create a conducive learning environment.

Based on preliminary observations, it is known that at SD Negeri Ciruas 2 teachers apply teaching strategies that are ineffective in providing students with an understanding of science subjects. This causes students to have difficulty understanding the material presented, so that in the end it has an impact on learning outcomes that are not optimal. This condition occurs in fifth grade students in science subjects with a gap between the achievement of the Minimum Criteria for Completion from the outcomes of the semester's final examination. In addition, there are also the results of the SDN Ciruas 2 at 2020 years quality report which shows that the results below the achievement standards in the Graduate Competency Standards in graduate indicators, have competence in the attitude dimension in the student sub-indicators have behaviors that reflect a confident attitude with a score of 5.6 while the maximum value that must be achieved is 7.0. It can be concluded that students at SDN Ciruas 2 have less self-confidence so they must immediately find the right solution to hone student confidence and improve student learning outcomes.

In line with states Secanggang (2012) dan Toyiba dan Fitriyani (2016), it turns out that It's crucial for teachers to value pupils' capacity for critical thought to know in order to understand student characteristics and determine what strategies are needed to teach in the next learning.

Ennis (1993) explains that critical thinking is reflective thinking that makes sense and focuses on decisions to be made with confidence, even according to Weinstein (1985) states that one of the characteristics of critical thinking is A skill in problem-solving and learning activities is the intellectual process involved in participating actively in some activities or critical thinking. The classroom climate and the instructor's attitude might have an impact on students' critical thinking abilities. So it can be understood that in order to achieve student success in learning, a teacher not only depends on the teaching method he uses, but must also pay attention to the suitability of the method with the critical thinking ability of his students.

To improve science learning outcomes in addition to having to understand student characteristics (critical thinking ability) teachers must also be good at choosing learning strategies. Crawford (2001) reveals that the REACT learning strategy is contextual learning which is at the core of the principles of constructivism. REACT's learning strategy is in a neutral position that provides an opportunity to explore their potential according to the pupils' capacity for critical thought. However, To comprehend how critical thinking abilities affect student learning outcomes and how they interact with the learning techniques employed, it is important to assess students' critical thinking abilities.

The formulation of the problem that will be examined in this study is based on the problem's background is "The development of the REACT learning model and students' critical thinking ability on science learning outcomes" from the formulation of the problem, therefore a study was conducted that aims to (1) examine the difference in the influence between the use of REACT Learning methodologies and outcomes in science compared to normal learning strategies, (2) Examine the disparities between students with high critical thinking skills and students with low critical thinking abilities in terms of their performance on scientific learning objectives, (3) examine the influence of interactions between education strategies and students' critical thinking abilities on student science learning outcomes, (4) Analyze kids who have strong critical thinking abilities, whether there are differences in Comparing REACT learning methodologies to traditional learning strategies, scientific learning outcomes, and (5) examine students who have low ability to think critically, whether science learning outcomes are greater when taught with conventional learning strategies compared to REACT learning strategies.

METHOD

This study employed a 2x2 factorial design using a quasi-experiment pretest-posttest research methodology. Due to this, two sets of classes were employed in the execution of this study: the experimental class, which used the REACT approach, and the control class, which used traditional learning strategies. To assess both groups' pupils' capacity for critical thought (experiments and controls) instruments are given at the end of learning.

Research Design

Table 1. Design treatmen by level 2 x 2

Free Variables		Learning Model (A)	
		REACT (A1)	Conventional (A2)
Critical thinking skills	High (B_1)	A_1B_1	A_2B_1
	Low (B_2)	A_1B_2	A_2B_2

Information:
A1: Students are taught in groups using the REACT learning methodology.
A2: Groups of students taught with conventional learning models.
B1: Groups of students are instructed using traditional teaching methods.
B2: group of learners lacking in critical thinking abilities.
A1B1: Results of groups of students that received instruction in science using REACT techniques and had excellent critical thinking abilities.
A1B2: Results of science instruction for groups of students with inadequate critical thinking abilities who were taught utilizing REACT techniques.
A2B1: Results of science instruction for groups of students that get standard instruction and possess advanced critical thinking abilities.
A2B2: Results of science instruction for groups of students that get traditional instruction and exhibit poor critical thinking abilities.

Research Objectives

The study was conducted in the 2020/2021 school year. The class 5 students of SD Negeri Ciruas 2 are the focus of this investigation where there are two classes, namely 5A class and 5B class. Broadly speaking, this study aims to explore how critical thinking abilities and REACT learning tactics affect scientific learning results.

Data Collection Techniques

Preconceived classes are impossible to change. Therefore, researchers do not conduct scrambled selection of individual samples. Because there are only two classes that have been formed, The usage of one class as an experimental class and the other class is made into a control class. A pre-test was administered to both courses to gauge each group's propensity for science proficiency. Then the experimental group was given treatment, namely the use of the REACT learning strategy, while the control group was not given treatment or still used a conventional learning model. After completion of learning, both groups (experimental and control) were given instruments to measure critical thinking ability and then given another test (post-test) to measure science competence or science learning outcomes. Post-tests were conducted to determine changes in students' science competencies in both classes.

RESULTS AND DISCUSSION

After obtaining science learning results from experimental classes and control classes, the data were sorted into 25% groups based on their critical thinking skills. The following are presented the results of students' science learning for experimental classes and control classes after being grouped based on critical thinking skills.

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Table 2. Descriptive statistics of REACT (experiment) and conventional (control) critical thinking classes high and low

Dependent Variable: Learning Outcomes

Learning Strategies	Critical Thinking	Mean	Std. Deviation	N
REACT (Experiment)	High	82.50	4.629	8
	Low	70.00	5.345	8
	Total	76.25	8.062	16
Convensional (Control)	High	50.00	5.345	8

	Low	72.50	6.547	8
	Total	61.50	12.974	16
Total	High	66.25	17.464	16
	Low	71.25	5.916	16
	Total	68.75	13.075	32

Based on Table 2, data were obtained that the mean value for science learning outcomes with the REACT strategy of high critical thinking was 82.50 and the standard deviation was 4.63 while the average scientific learning results among pupils who exercised critical thinking were poor was 70.00 and the standard deviation was 5.35. So in this case, It may be inferred that there are differences between students who are taught utilizing the REACT approach in groups with high critical thinking skills and group abilities who think critically low in terms of capacity or learning outcomes for science.

The results of learning science in class with conventional learning there are different results between student groups with strong critical thinking abilities and those who think critically low, it can be based on the results of the computation of the mean and standard deviation on each variable. For the mean of science learning outcomes in classes with conventional learning with high critical thinking ability is 50.00 and the standard deviation is 5.35 while for groups that have low critical thinking ability the mean obtained is 72.50 and the standard deviation is 6.55

Considering the information in table 2's findings, it is known that the highest average score is found in classes with REACT strategies and high critical thinking, which is 82.50 while the lowest average score is in classes with conventional learning and high critical thinking, which is 50.00.

In the control and experimental classes as a whole it can be stated that the average total value is 68.75 and the standard deviation is 13.08. Overall science learning outcomes will be presented in frequency distribution data and histograms as follows:

Table 3. Frequency distribution of science learning outcomes

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
40-48	1	3.1	3.1	3.1
49-57	6	18.8	18.8	21.9
58-66	5	15.6	15.6	37.5
67-75	11	34.4	34.4	71.9
76-84	6	18.8	18.8	90.6
85-93	3	9.4	9.4	100.0
Total	32	100.0	100.0	

Based on the frequency distribution table and histogram of science learning outcomes taken from 32 students as a sample contained Between the experimental and control groups, the typical grade point average rating of 68.75 was obtained so that it can be stated that 37.5% of students scored below the average and 62.5% of students scored above the average.

Furthermore, what is done is a normality test and data homogeneity for hyposthesis testing prerequisites.

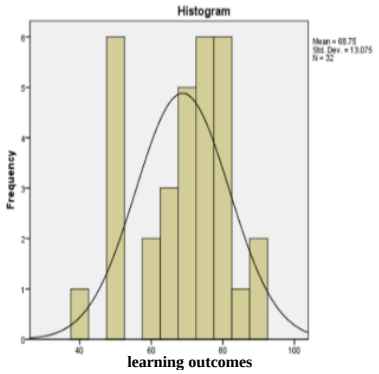

Figure 1. Histogram of overall science learning outcomes

1. Normality Test

Table 4. Normality test

	Shapiro-Wilk		
	Statistic	df	Sig.
Standardized Residual for Outcome_Learning	.954	32	.182

Researchers used the normality test according to Shapiro-Wilk because the number of samples was less than 50. The decision criterion is that if the significance or probability value > 0.05 then the distribution is normal (Ridwan et al, 2011).

Using Table 4's computation findings as a basis using the Shapiro-Wilk test, it is 0.182. It is seen that it has a value of Sig. > (= 0.05) so that Ho is accepted, then The data are found to be regularly distributed.

2. Homogeneity Test

Test for homogeneity stage is acted upon to find out whether the existing data are really the same (homogeneous) according to the results in the field, besides this test is a prerequisite for statistical tests with the aim of knowing the homogeneity of population data with a signification level of α = 0.05.

The provision for testing the homogeneity of population data is that if the numerical signification is higher than the Sig value > α (α = 0.05) then the data is homogeneous and if the counting signification is smaller than the Sig value < α (α = 0.05) then the data is not consistent. Table 5 of this study's homogeneity testing findings is displayed.

Table 5. Results of the population variance homogeneity test signification level α = 0.05

F	**df1**	**df2**	**Sig.**
.622	3	28	.607

The decision criterion if the probability or significance value is greater than 0.05, then the data are from the same variance (Ridwan et al, 2011). Based on the Homogeneity test in Table 4.10, it was obtained that the probability value in the significance column of 0.607 is greater than 0.05. The data can be interpreted to be homogenous.

3. Hypothesis Test

Normality and homogeneity testing has been carried out and has been fulfilled, then the stage of studying the impact of REACT, Conventional learning strategies and students' critical thinking on science learning outcomes in experimental class 1 and control class 2 is carried out, using 2x2 Anova Two Paths.

Two-Track Anova testing was conducted to determine whether REACT and traditional techniques affected pupils' ability to think critically. Two-Lane Anova results can be seen in table 6.

Table 6. Two-lane anova test

Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**F_{tab} (0,01)**	**F_{tab} (0,05)**
Corrected Strategies	4450.000[a]	3	1483.333	48.863	.000	5.45	3.34
Intercept	151250.000	1	151250.000	4982.353	.000		
Learning strategies	1800.000	1	1800.000	59.294	.000		
Critical thinking	200.000	1	200.000	6.588	.016		
Critical Thinking Learning Strategies	*2450.000	1	2450.000	80.706	.000		
Error	850.000	28	30.357				
Total	156550.000	32					
Corrected Total	5300.000	31					

a. R Squared = .840 (Adjusted R Squared = .822)

Through hypothesis testing in the table above, It can be stated that that there is a very signifying interaction between learning strategies and students' critical thinking on science learning results, this is based on the hypothesis testing rules which state that if Fcount > Ftabel then H0 is rejected and Hα is accepted while with Fcount < Ftabel then H0 is accepted and Hα is rejected. Based on these tests, Fcount for the impact of students' critical thinking and learning practices on results in scientific learning > In this instance, Ftabel 80,706 > 3.34.

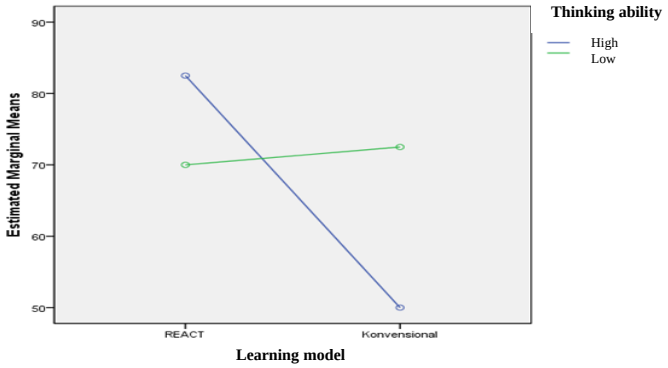

Figure 2. Histogram of overall science learning outcomes

Based on chart 2 the hypothesis test with two-track anova states that there is a significant interaction influence between learning strategies and critical thinking on science learning outcomes that allow further use of the tukey test.

Hypothesis testing using the Tukey test is used to compare groups with the same number of samples. Profile plots that show the influence of the interaction of using REACT strategies and critical thinking on science learning outcomes.

4. Advanced Test (Tukey)

After the two-path anova data is carried out, the next stage is an advanced test (Tukey) to answer the formulation of problems 4 and 5. Here's the tukey test table.

Table 7. Advanced hypothesis testing with tukey test

$\bar{X}$ A_1B_1	$\bar{X}$ A_2B_2	$\bar{X}$ A_1B_2	$\bar{X}$ A_2B_1
82,50	72,50	70,00	50,00
q_1 = 16,684			
q_2 = 6,417			
q_3 = 5,134			
q_4 = 11,550			
q_5 = 1,283			
q_6 = 10,267			

Based on Tukey's Advanced Test it can be concluded that :

1) q1 is a REACT strategy – High critical thinking (A1B1) with Conventional strategy – High critical thinking (A2B1) with q1 calculate > q(0.05) table i.e. 16.684 > 3.90 so it is stated that there is a significant difference. Learning outcomes of science are higher for learners who demonstrate a high level of critical thinking and are taught with REACT strategies compared to students taught with conventional strategies.

2) q2 is a strategy REACT – High critical thinking (A1B1) with strategy REACT – Low critical thinking (A1B2) with q2 calculate > q(0.05) table i.e. 6.417 > 3.90 so it is stated that there is a significant difference. Science learning outcomes for students who have high critical thinking skills taught with REACT strategies are higher when compared to students who think critically low

3) q3 is a REACT strategy – High critical thinking (A1B1) with Conventional strategy – Low critical thinking (A2B2) with q3 calculate > q(0.05) table i.e. 5.134 > 3.90 so it is stated that there is a significant difference. Science learning outcomes for students who have high critical thinking skills taught with REACT strategies are higher when compared to students who think critically low.

4) q4 is a Conventional strategy – Low critical thinking (A2B2) with Conventional strategy – High critical thinking (A2B1) with q4 calculate > q(0.05) table i.e. 11,550 > 3.90 so it is stated that There is a significant distinction. Science learning results for students who have low critical thinking skills taught with conventional strategies are higher when compared to students who think critically high.

5) q5 is a Conventional strategy – Low critical thinking (A2B2) with a REACT strategy – Low critical thinking (A1B2) with q5 calculate > q(0.05) table i.e. 1.283 < 3.90 so it is stated that there is no significant difference. Science learning results for students who have low critical thinking skills taught with conventional strategies are no different or the same when compared to students who think critically low.

6) q6 is a REACT strategy – Low critical thinking (A1B2) with Conventional strategy – High critical thinking (A2B1) with q6 calculate > q(0.05) table i.e. 10.267 > 3.90 so it is stated that there is a significant difference. Science learning results for REACT methods are used for teaching children who lack critical thinking abilities are higher when compared to students who think critically high which are taught using traditional methods.

Based on the outcomes of the study analyzed and tested with a two-track anova statistical test then continued with the tukey test, this study produced several results including:

1.There is a difference in the influence between the use of REACT learning strategies compared to conventional learning strategies on science learning results. This is based on the results of a two-track anova statistical test which states that the calculated FA value for the learning strategy category is 59,294 which means that the > from table F(0.05) of the table is 3.34.

2. students with good critical thinking abilities and pupils with unsuitable critical thinking skills get different learning results in science. This is based on the results of a two-track anova statistical test which states that the calculated FA value for the critical thinking ability category is 6.588 which means that the > from table F(0.05) of the table is 3.34.

3. The combination of students' critical thinking skills and learning methodologies has an impact on how well they study science. This is based on the results of a two-lane anova statistical test which states the FA count > F(α) table i.e. 80,706 > 3.34.

4. For students who has high critical thinking abilities, science learning outcomes are higher when taught with REACT strategies compared to conventional strategies. This is based on the Tukey test which states that the results of science learning are higher for students who have high critical thinking skills when taught with REACT strategies compared to conventional strategies with q1 calculate > q(0.05) table which is 16,684 > 3.90.

5. Science learning results for kids with poor critical thinking abilities make no difference between students taught with conventional strategies compared to REACT strategies. This is based on the results of the Tukey test which states that Learning outcomes in science for children who difficulty with critical thinking taught with conventional strategies are no difference or the same when compared to students who think critically low which is taught with REACT strategies with calculation results that state that q5 calculate < q (0.05) table, which is 1.283 < 3.90.

Discussion

1. Differences in the influence between the use of REACT learning strategies compared to conventional learning methods for improving scientific learning outcomes.

Based on the two-path Anova table which is the result of the hypothesis test proposed by the researcher, It is apparent that the Fcount value for the learning strategy category is 59,294. This means that the Fcount > Ftabel value of 59,294 > 3.34 which states that for hypothesis 1 there is a very significant influence between REACT strategies on science learning results.

From the descriptive results, it can be seen that the average science learning results taught with the REACT strategy are 76.25 while those using conventional strategies are 61.50. Based on the analysis, it can be stated that the results of learning science using the REACT learning strategy are higher than students who use conventional learning strategies.

Asrofi (2008) explains that Learning is a process, not the end result, where a person seeks to obtain new behavior changes from his experiences. Meanwhile, Abu Ahmadi (2005) explained that Learning styles are one of several elements which influence learning results (visual, auditorial, and kinestic) and the use of learning media. The opinion is supported by Ozbay & Kayaoglu (2015) that teaching activities based on REACT strategies encourage students to analyze information and comment on knowledge in their individual comprehension abilities.

Referring to the opinions of these experts, it can be stated that students need REACT learning strategies in their learning process so that there is an improvement in science learning outcomes. The use of REACT strategies is able to create an active and creative student learning experience by utilizing learning media. In accordance with the opinion of Taraufu, Gumolung, & Caroles (2020) shows that there is an influence in the application of the REACT learning strategy on learning outcomes compared to the application of conventional (expository) strategies.

Based on the results of quantitative and qualitative information, it is stated that there is a difference in the influence between the use of REACT learning strategies compared to

conventional learning strategies on science learning outcomes.

2. students with great critical thinking abilities and pupils with unsuitable critical thinking skills have different learning results in science.

Based on the two-track anova statistical test which states that the calculated FA value for the critical thinking ability category is 6.588 which means > from table F(0.05) table which is 3.34 thus this states that there is a difference in science learning outcomes between students who have high critical thinking ability and students who have low critical thinking ability

Amir (2015) stated that Critical thinking is the mental process of gathering, classifying, analyzing, and evaluating data or evidence in order to draw a conclusion and solve difficulties. In line with the above opinion Ulger (2018) states that critical and creative thinking are both important skills that students use by means of guiding students to receive information by asking questions and discovering new methods for problem solving, so that learning activities must involve inquiry, criticism or creativity of students.

Based on the results of quantitative and qualitative information, it is stated that there is a distinction between kids who have strong critical thinking abilities and those who don't have any on science learning outcomes.

3. The interaction between a student's capacity for thinking critically and the learning model has an impact on the outcomes of science instruction.

Based on the two-path Anova table which is the result of the hypothesis test proposed by the researcher, it can be seen that the Fcount value for the interaction category in hypothesis 5 is 80,706 > 3.34, so it is stated for the hypothesis that there is a very significant interaction influence between learning strategies and students' critical thinking ability on science learning outcomes.

This research supports Pine's (2011) theory which states that factors that influence the learning outcome process are distinguished by two categories, consist of both internal and external variables. Students' internal influences are those that start with them, one of which is the ability to think. While outside influences are those that affect the learner from outside, one of which is the learning approach (learning strategy).

Research on the subject has been conducted by Kreano (2014) where the results of his research showed that the application of REACT learning strategies was effective on Student's mathematics communication abilities of quadrilateral material grade VII SMP Negeri 1 Gembong.

Another research conducted by Taraufu et al. (2020) from the results of the research obtained can be seen that there is an influence of the application of the REACT learning strategy on student learning outcomes on acid-base concept material. In line with Abu Ahmadi (2005) argues that the high and low learning outcomes of science obtained by students can be influenced by learning style factors and the use of learning media.

Based on qualitative and quantitative information, it is said that there is a very significant interaction influence between the use of learning strategies and students' critical thinking ability on science learning outcomes.

4. For students who has high critical thinking abilities, science learning outcomes are higher when taught with learning methods using REACT compared to those using traditional methods.

Based on the Tukey test, it is stated that science learning outcomes are higher for students who have high critical thinking skills and are taught with REACT strategies compared to students who are taught with conventional strategies with q1 count is 16,684 which means greater than q(0.05)table which is 3.90

The outcomes of the descriptive analysis showed that the average science learning results of students who thought critically high with the REACT strategy were 82.50 while in conventional learning strategies an average score of 50.00 was obtained. This shows that the average science learning outcomes in students who think critically are high using the REACT learning strategy higher than using conventional learning strategies.

In addition to students' critical thinking skills, the application of appropriate learning strategies also has an influence on science learning outcomes. In line with the opinion of Sanjaya (2010) states the learning strategy is a learning activity that both teachers and students must complete in order to successfully complete the learning objectives. In the REACT learning strategy which is contextual learning demands students' high critical thinking ability, in line with Danver (2016) opinion that contextual learning is based on the belief that learners process and learning new information more quickly when they can draw connections between new content and their own interactions and environments.

5. For students who have low critical thinking skills, science learning outcomes are higher

when taught with conventional learning models compared to the REACT learning model.

Based on the outcomes of Tukey's advanced test which states that the result of the $q5_{count}$ is 1.283 smaller than the q(0.05)table which is 3.90. Meanwhile, the results of the descriptive analysis show that typical results of scientific learning that think critically are low with conventional learning strategies is 72.50 and in the REACT strategy, an average of 70.00 is obtained.

Based on the calculation results above, it is concluded that science learning outcomes for students who think critically low which are taught with conventional strategies and REACT strategies the results are not significant or hypothesis 4 is not proven.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Students that are taught utilizing Relating, Experiencing, Applying, Cooperating, and Transferring (REACT) learning strategies have significantly different scientific learning results and are taught with conventional learning strategies, students with good critical thinking abilities do much better than pupils with low critical thinking skills in terms of their learning outcomes in science, there is a very significant interaction influence between the use of learning strategies and critical thinking skills of students towards science learning outcomes, for students who have high critical thinking skills, science learning outcomes are higher when taught with REACT learning strategies compared to using conventional learning strategies, and there is no significant difference in science Learning results for students with low critical-thinking abilities who are taught using conventional strategies compared to using REACT learning strategies.

Suggestion

The suggestions are (1) teachers are expected to be able to choose and use appropriate and innovative learning strategies to achieve learning objectives and improve the quality of learning by paying attention to students' critical thinking skills, (2) The critical thinking abilities of pupils are supposed to be known by teachers, in order to determine learning strategies that are in accordance with students' critical thinking skills, (3) teachers are expected to create an active, creative and fun learning atmosphere, so that they are memorable for students and learning objectives can be achieved effectively, (4) for subsequent researchers, it is advisable to conduct research with a larger population area and by using different indicators to find out whether to further strengthen or weaken the research that the researcher has currently conducted, and (5) for researchers or subsequent education practitioners, it is hoped that they will be better able to develop research designs with learning strategies and more elements to improve research outcomes in an effort to improve student learning outcomes.

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