

Effect of Think-Pair-Share Teaching Strategy on Understanding the Concept of Science in Students at Elementary Level

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ABSTRACT

The study was conducted to examine and determine the effect of Think Pair Share Teaching Strategy on understanding of science concepts at elementary level. For this purpose of the study, the researcher developed one objective and three research questions. (a) To find out the conceptual understanding of selected topics in general science of elementary students. The study was highly significant for teachers, students and curriculum developer. The study was experimental in nature. Researcher conducts an experiment at GGES 745 GB at District Toba Tek Singh. Two groups were made one is experimental group and the second is control group for the study. Intervention was made to experimental group while there is no intervention was giving to control group. Control group was deal with traditional method. Thirty students were randomly selected from population of the study for each group. A pretest and posttest was designed to measure the understanding level of students. A questionnaire having 10 statements comprised on five points Likert scale was also designed to measure the attitude of students regarding understanding the concepts of science at elementary level through think pair share teaching strategy. It was noted that Think Pair Share Teaching Strategy was more effective than other strategies. The data so collected was analyzed by using SPSS software and data were analyzed through descriptive and inferential statistics. There was wide difference in the academic achievement of students and conceptual understanding of the students in pre-test and post-test. Think pair share teaching strategy enhance students' academic achievement, conceptual understanding, learning, motivation, reading and writing skills and developed communication skills to solve the students problems in classroom. It is recommended that teachers should use think pair share teaching strategy in classroom for students learning.

INTRODUCTION

Science Teaching at elementary level is a process of instructing skills, knowledge and expressions in learning. There are numerous ways of science teaching in traditional system: Lecture method, Discussion method, Inquiry problem solving, Demonstration, Laboratories, Project methods etc.

Huitt (2007) analyzed that we must have advanced approach of teaching and learning science to enhance student's skill, interests, participation and aptitude in science. At present, conceptual understanding is more important than memorization of information. Therefore, we need to develop some teaching methods that involve student's active contribution in peer leaning. Bernhard *et al.*, (2007) analyzed that traditional means of teaching as lecture method does not considered effective for the well-designed understanding of science. In this method students are passive listeners or mentally diverted from subject matter resulting into poor performance. Malhotra (2006) concluded that Conceptual understanding of students can be improved by manifesting Think Pair Share strategy of science teaching.

Think Pair Share

Professor Frank Lyman was the first educationist who proposed this model, Think-Pair-Share in 1981 and later it developed by all over the world. The fundamental component of this model is to improve students' learning by means of discussion with fellows. However, process of learning will be more effective there will be more discussion and student's outcomes are also improved (Kaddoura, 2013).

Think-pair-share (TPS) consists of three steps including period of thinking, sharing ideas with fellow and finally expressing views in front of class. The time given for "thinking" integrates the conceptual thoughts regarding the subject matter.

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- The thinking phenomena excites when instructor offers a problem or question regarding the lesson he had taught. Then students are given specific time to think and resolve the problem, duration is based upon the learners previous knowledge, complexity and nature of question.
- In second step, learners are asked to get themselves into pairs followed by discussion and sharing of ideas and finally they achieve same set of views regarding given topic.
- In sharing step, student of each pair go for demonstration with other classmates and so on. In this way half of the total strength can describe the ideas as a whole class (Saleh and Ibrahim, 2015).

Teaching and learning in science discipline does not demand any costly apparatus, tools or medium but it requires student's involvement. According to Holbrook (2010) compared various teaching strategies in science subjects and found that the core concept of understanding and long term memorization lies in the cooperation and active engagement of peer fellows. Teacher highlights the content and concept of subject matter then motivates students to communicate their understanding and knowledge with other fellows. Since, it is concluded that active learning by TPS strategy enhances student's long term knowledge, communication skills, critical analysis and comparison by improving cognitive abilities. Yardim (2009) observed that learners approach towards conceptual building in science has transformed after implementing peer led discussion in class. Interaction and discussion among students improve their intrinsic and extrinsic skills. He suggested implementing more strategies that would enhance learners hidden mastery traits in various disciplines. Ajiboye and Ajitoni (2008) found that student's superlative learning can be achieved by involving them physically as well as mentally in the brightness of new information and their experiences. Hence, pedagogic concept, communication and interaction among peer fellows can be improved by implementing TPS strategies in class room. Kagan (2009) pointed out various aspects of TPS that supports its implementation in science:

- The participation in "think time" has led to improve the critical thinking and response in a given context
- Conceptual understanding improves by sharing with a partner in an appropriate time.
- Communication skills of students are improved by reflecting their knowledge and experiences in class room.
- No scientific tools or materials are required to conduct this strategy in class room.
- Students found comfortable to ask question or discuss with class fellow than teacher.
- Student's commitment to their partners ensures improved attendance in class.
- Multiple issues or questions can be discussed regarding subject matter.
- Ideas of brilliant students help their classmates to build their concept and knowledge.

Ruiz (2011) found that admirable learning outcomes can be achieved by cooperative learning, Think-pair-share teaching strategy. Formative assessment in TPS permits the instructor to analyze the conceptual understanding of students. Using this technique, teacher improves the profile of learning activates to enhance the student-student cooperation in class. Macdonald and Twining (2002) analyzed that learners should have conceptual understanding rather than cramming since it will be helpful in various advanced disciplines. Active partnership of students with their brilliant classmates leads to improved learning outcomes. The successions of activities inside the four walls of classrooms are deliberated as backbone of science teaching.

Connelly (2010) concluded that peer teaching imparts positive role in comprehension, student motivation and overall academic achievement. Collaboration among students in small groups has improved the learning outcomes as well as attitude towards scientific approaches exclusive of any gender discrimination.

However, from above studies it becomes clear that traditional lecture method is not efficient for the conceptual understanding of science due to lack of students participation or passive mode of knowledge transmission. Conversely, Think-pair-Share strategy maintains them as intellectually engaged with superior communication skills, feedback and cognitive development in classroom.

Objectives of the study

1. To find out the conceptual understanding of selected topics in general science of elementary students.

Research Questions

- 1.1 What is state of basic knowledge of general science concepts?
- 1.2 What is the basic knowledge of general science concepts taught through Think-Pair-Share teaching strategy?
- 1.3 What is the opinion of students about Think-Pair-Share teaching strategy?

LITERATURE REVIEW

Smith et al. (2009) studied that when students actively participate in classroom, share problem with classmates then percentage of accurate answers ultimately increased. This leads to better understanding of concepts, class fellow influence his partner's knowledge as well as score. Similar questions were asked individually as well as from groups consisting of students. Results showed that students after discussion with peer fellows were answering in a better way than individually. Yardim (2009) analyzed that friendly learning conditions got expanding consideration in education because of the potential for improving learning and comprehension. However, past research shows that not all students profit with this experience. This paper investigates the idea of aiding conduct inside peer-directed little gatherings that might be best for learning, particularly for students who experience issues with the material. Drawing on models from ongoing exploration on student learning in Mathematics in a US center school, he recognized student practices that are fundamental for effective assistance chasing and help giving, just as obligations of educators in building up study hall conditions that achieve effective aiding conduct. The discoveries show that effective assist searchers with posing exact inquiries, continue looking for help, and apply the clarifications got; effective assist suppliers with giving point by point clarifications of the material just as promising circumstances for assisting students understanding. Khaji (2010) aimed research to analyze the effect of Think Pair Share teaching strategy in understanding the physics concepts and ability for solving the problems in physics in students. Two research groups were designed, experimental group comprised of 27 students while control group comprised of 25 students. After statistical analysis, researcher has suggested the implementation of Think Pair Share teaching strategy in teaching the concepts of physics as well as other science subjects. Hasibuan (2019) conducted a research to analyze the effect of Think Pair Share teaching strategy in developing students reading skills at 7th grade students of Panyabungan during the academic session 2019-2020. This study was conducted by using class room action research with a sample size of 28 learners. The aim of this study was to visualize the effect of TPS on students reading capabilities. This research comprise of 2 cycles; plan, action, observation and finally reflection. Qualitative and quantitative data was collected and subjected for statistical analysis. Findings showed that score from second cycle have showed great improvement than first cycle. This research concluded that Think Pair Share teaching strategy improved student's interest towards reading and comprehension during learning process.

TPS and students critical thinking

Kurjum et al. (2020) analyzed one of the most important kinds of cooperative learning, Think Pair Share teaching strategy. This research monitored the effect of Think Pair Share teaching strategy in Islamic studies specifically improving the learner's critical thinking. This study focused upon knowing the effectiveness of students taught by traditional method and Think Pair Share teaching strategy. Two groups were designed, experimental and control. Quasi-experiment based research with pre and post was made. Samples were collected by random selection from population studying Islamic studies for both groups. Test was conducted to collect data, while t-test was used as statistical analysis. Findings of this research showed significant difference among teaching strategies, traditional method and think pair share teaching method. Think Pair Share teaching strategy showed great effectiveness for teaching students in all disciplines.

Bamiro (2015) investigated the effectiveness of three teaching strategies i.e. lecture method, think-pair-share and guided discovery. Experiment was based on pre-test, post post and control group with factorial matrix. Three strategies i.e. lecture method, think-pair-share and guided discovery were used for three levels primary, middle and high for both genders. Data was collected by using three instruments within 8 weeks under treatment. Data was subjected under statistical analysis and graphically represented. Results showed that students instructed through think-pair-share and guided discovery showed great improvement in post test conducted for chemistry and other science subjects. Mutiara and Bugis (2018) conducted a research to know the effect of Think Pair Share teaching strategy on 8th class students reading skills at Madrasah-Tsanawiyah-Uswatun-HasanahLala. This

study consisted of a Class room action research. Test series (cycle-1 and cycle-2) was conducted to monitor the effectiveness of students taught by Think Pair Share teaching method. Findings proved that implementation of Think Pair Share teaching strategy has improved the average score of students as well as student's participation has also elevated. Afan et al. (2018) conducted this research to know the implementation of Rally Robin and Think Pair Share teaching methods which can be used as an effort to enhance the tenth grade college students' interest and gaining knowledge of achievement on on-line enterprise and marketing at Jombang particularly that taking business communication as a major. This is based on Class room Action Research. The facts acquired are records from the remark of the implementation of sports conducted by using instructors and students, monitoring and the summative assessment. The results of this studies are: 1) the accomplishment of Rally Robin and Think Pair Share methods can be implemented properly, 2) Think Pair Share and Rally Robin models plays role in the development of students' interest in studies, three) Think Pair Share and Rally Robin can enhance student success by improving their learning outcomes.

METHODOLOGY

The design of the study was true experimental. A randomized posttest only control group design was applied. Subjects were randomly assigned in two groups. In the randomized posttest only control group design, two groups of subjects are used, with both groups being measured or observed at the end of the intervention called posttest.

Symbolically the design can be written as:

R	X	O
R	C	O

Where: R= Random selection of subjects into group

O= Post-test

C= No treatment of control group

X= Treatment of experimental group through interventions

Participants were classified into two groups – control and experimental group. These groups will expose to treatment as i.e. think pair share teaching strategy and lecture method (control group) then post tested. The experimental group obtained a treatment that is instructing through think pair share teaching strategy and after intervention. A sample of 60 students was selected using simple random sampling technique. To measure academic achievement and conceptual understanding of the students in the science, an achievement test was developed. The test was designed following principles of test item construction. It would have 100 multiple choice items having labeling pictures items. Reliability of the instrument was ensured by split half method and validity of the test was ensured by the experts of research and science. The time period of the test was fixed as 60 minutes. Questionnaire on five Likert scale was used for measuring the attitude of students as develop for understanding the concept of science while using TPS teaching strategy.

Tabulator representative of data analysis techniques are as under:

Objectives	Research Questions and Hypothesis	Tools	Analysis
1. To find out the conceptual understanding of selected topics in general science of elementary students.	1.1. What is the state of basic knowledge of general science concepts?	Pretest	Mean, SD and t-test
	1.2. What is the basic knowledge of general science concepts taught through Think-Pair-Share teaching strategy?	Posttest	Mean, SD and t-test
	1.3. What is the opinion of students about Think-Pair-Share teaching strategy?	Questionnaire	Mean, SD and t-test

Data Analysis and Interpretation

Table 1:

Basic concepts of science of the students in Experimental and Control Group in Students' Pre-test.

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Experimental	30	1.90	1.19	28	3.59	.321
2.	Control	30	1.80	1.12			

N= No. of students in experimental and control group = (30, 30), Mean= (1.90, 1.80), SD=Standard Deviation= (1.19, 1.12), DF= Degree of Freedom= 28, T. Value= 3.59, P. Value= .321 ($P > 0.05$), T. (28) = 3.59, $P > 0.05$

T. (28) = 3.59, $P > 0.05$

Table 1 shows the data analysis of the experimental and control group on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the data in pre-test, the result showed as N= No. of students in experimental and control group = (30, 30), Mean= (1.90, 1.80), SD=Standard Deviation= (1.19, 1.12), DF= Degree of Freedom= 28, T. Value= 3.59, P. Value= .321 ($P > 0.05$), T. (28) = 3.59, $P > 0.05$. T and P values show that both experimental and control groups are not significantly different.

Table 2:

Basic concepts of science of the students in Experimental and Control Group of the Students' Post-test.

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Experimental	30	4.53	0.73	28	.271	.035
2.	Control	30	2.10	1.28			

N= No. of students in experimental and control group = (30, 30), Mean= (4.53, 2.10), SD=Standard Deviation= (0.73, 1.28), DF= Degree of Freedom= 28, T. Value= .271, P. Value= .035 ($P < 0.05$), T. (28) = .271, $P < 0.05$

T. (28) = .271, $P < 0.05$

Table 2 shows the data analysis of the experimental and control group on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the data in post-test, the result showed as N= No. of students in experimental and control group = (30, 30), Mean= (4.53, 2.10), SD=Standard Deviation= (0.73, 1.28), DF= Degree of Freedom= 28, T. Value= .271, P. Value= .035 ($P < 0.05$), T. (28) = .271, $P < 0.05$. T and P values show that both experimental and control groups are significantly different regarding to effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level.

Analysis of data related to the questionnaire

Table 3

Increase actively participation in classroom

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.56	1.39	28	.397	.171
2.	Female Students	15	3.61	1.45			

N= No. of students = (15, 15), Mean= (3.56, 3.61), SD=Standard Deviation= (1.39, 1.45), DF= Degree of Freedom= 28, T. Value= .397, P. Value= .171 ($P > 0.05$), T. (28) = .397, $P > 0.05$

T. (28) = .397, $P > 0.05$

Table 3 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.56, 3.61), SD=Standard Deviation= (1.39, 1.45), DF= Degree of Freedom= 28, T. Value= .397, P. Value= .171 ($P > 0.05$), T. (28) = .397, $P > 0.05$. T and P values show that both male and female students are not significantly different in their opinion.

Table 4:

Helpful to share learning problems with classmates which increase the percentage of accurate answers

Sr	Category	N	Mean	SD	DF	T. Value	Significant
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#						P. Value
1.	Male Students	15	3.49	1.30	28	.379
2.	Female Students	15	3.57	1.37		.161

N= No. of students = (15, 15), Mean= (3.49, 3.57), SD=Standard Deviation= (1.30, 1.37), DF= Degree of Freedom= 28, T. Value= .379, P. Value= .161 (P> 0.05), T. (28) = .379, P> 0.05
T. (28) = .379, P> 0.05

Table 4 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.49, 3.57), SD=Standard Deviation= (1.30, 1.37), DF= Degree of Freedom= 28, T. Value= .379, P. Value= .161 (P> 0.05), T. (28) = .379, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 5:

Increase the reading and writing ability of students

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.71	1.49	28	.391	.177
2.	Female Students	15	3.81	1.57			

N= No. of students = (15, 15), Mean= (3.71, 3.81), SD=Standard Deviation= (1.49, 1.57), DF= Degree of Freedom= 28, T. Value= .391, P. Value= .177 (P> 0.05), T. (28) = .391, P> 0.05
T. (28) = .391, P> 0.05

Table 5 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.71, 3.81), SD=Standard Deviation= (1.49, 1.57), DF= Degree of Freedom= 28, T. Value= .391, P. Value= .177 (P> 0.05), T. (28) = .391, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 6:

Increase the students' academic achievement

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.65	1.43	28	.387	.161
2.	Female Students	15	3.67	1.46			

N= No. of students = (15, 15), Mean= (3.65, 3.67), SD=Standard Deviation= (1.43, 1.46), DF= Degree of Freedom= 28, T. Value= .387, P. Value= .161 (P> 0.05), T. (28) = .387, P> 0.05
T. (28) = .387, P> 0.05

Table 6 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.65, 3.67), SD=Standard Deviation= (1.43, 1.46), DF= Degree of Freedom= 28, T. Value= .387, P. Value= .161 (P> 0.05), T. (28) = .387, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 7:

Emerged new learning ideas which make science subjects better comprehend for learners

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.70	1.42	28	.384	.180
2.	Female Students	15	3.71	1.44			

N= No. of students = (15, 15), Mean= (3.70, 3.71), SD=Standard Deviation= (1.42, 1.44), DF= Degree of Freedom= 28, T. Value= .384, P. Value= .180 (P> 0.05), T. (28) = .384, P> 0.05
T. (28) = .384, P> 0.05

Table 7 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.70, 3.71),

SD=Standard Deviation= (1.42, 1.44), DF= Degree of Freedom= 28, T. Value= .384, P. Value= .180 (P> 0.05), T. (28) = .384, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 8:

Helpful for learners with peer-cooperation that enhance communication and induce responsibility

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.58	1.37	28	.394	.173
2.	Female Students	15	3.63	1.42			

N= No. of students = (15, 15), Mean= (3.58, 3.63), SD=Standard Deviation= (1.37, 1.42), DF= Degree of Freedom= 28, T. Value= .394, P. Value= .173 (P> 0.05), T. (28) = .394, P> 0.05
T. (28) = .394, P> 0.05

Table 8 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.58, 3.63), SD=Standard Deviation= (1.37, 1.42), DF= Degree of Freedom= 28, T. Value= .394, P. Value= .173 (P> 0.05), T. (28) = .394, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 9:

Helpful to take interest in the class because they do not feel the pressure engaged with peers to inquiries before the entire class

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.66	1.49	28	.377	.161
2.	Female Students	15	3.71	1.55			

N= No. of students = (15, 15), Mean= (3.66, 3.71), SD=Standard Deviation= (1.49, 1.55), DF= Degree of Freedom= 28, T. Value= .377, P. Value= .161 (P> 0.05), T. (28) = .377, P> 0.05
T. (28) = .377, P> 0.05

Table 9 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.66, 3.71), SD=Standard Deviation= (1.49, 1.55), DF= Degree of Freedom= 28, T. Value= .377, P. Value= .161 (P> 0.05), T. (28) = .377, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 10

Enhance the students' participation with confidence

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.70	1.61	28	.392	.179
2.	Female Students	15	3.73	1.66			

N= No. of students = (15, 15), Mean= (3.70, 3.73), SD=Standard Deviation= (1.61, 1.66), DF= Degree of Freedom= 28, T. Value= .392, P. Value= .179 (P> 0.05), T. (28) = .392, P> 0.05
T. (28) = .392, P> 0.05

Table 10 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.70, 3.73), SD=Standard Deviation= (1.61, 1.66), DF= Degree of Freedom= 28, T. Value= .392, P. Value= .179 (P> 0.05), T. (28) = .392, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 11

Developed urge in students for learning

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.59	1.49	28	.387	.162

2. Female Students	15	3.69	1.55
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N= No. of students = (15, 15), Mean= (3.59, 3.69), SD=Standard Deviation= (1.49, 1.55), DF= Degree of Freedom= 28, T. Value= .387, P. Value= .162 (P> 0.05), T. (28) = .387, P> 0.05
T. (28) = .387, P> 0.05

Table 11 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.59, 3.69), SD=Standard Deviation= (1.49, 1.55), DF= Degree of Freedom= 28, T. Value= .387, P. Value= .162 (P> 0.05), T. (28) = .387, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Table 12

Enhance students' critical thinking

Sr #	Category	N	Mean	SD	DF	T. Value	Significant P. Value
1.	Male Students	15	3.57	1.38	28	.395	.174
2.	Female Students	15	3.62	1.46			

N= No. of students = (15, 15), Mean= (3.57, 3.62), SD=Standard Deviation= (1.38, 1.46), DF= Degree of Freedom= 28, T. Value= .395, P. Value= .174 (P> 0.05), T. (28) = .395, P> 0.05
T. (28) = .395, P> 0.05

Table 12 shows the questionnaire data analysis on the effect of Think Pair Share teaching strategy on the understanding of science concepts at elementary level. After analyzing the questionnaire data, the result showed as N= No. of students = (15, 15), Mean= (3.57, 3.62), SD=Standard Deviation= (1.38, 1.46), DF= Degree of Freedom= 28, T. Value= .395, P. Value= .174 (P> 0.05), T. (28) = .395, P> 0.05. T and P values show that both male and female students are not significantly different in their opinion.

Findings

Table 1 shows the result of pre-test about conceptual understanding in science subject. T and P values show that both experimental and control groups are not significantly different. It was found that there performance is very low in conceptual understandings of science subject.

While Table 2 shows the result of post-test about conceptual understanding in science subject. T and P values show that both experimental and control groups are significantly different. It was found that there performance is high in conceptual understandings of science subject.

Table 3 shows the result of questionnaire data analysis. It was found that both male and female students are agree that Think Pair Share Teaching Strategy increase actively participation in classroom.

Table 4 shows the result of questionnaire data analysis. It was found that both male and female students are agreed that Think Pair Share Teaching Strategy helpful to share learning problems with classmates which increase the percentage of accurate answers.

Table 5 shows the result of questionnaire data analysis. It was found that both male and female students are agreed that Think Pair Share Teaching Strategy increase the reading and writing ability of students. Table 6 shows the result of questionnaire data analysis. It was found that both male and female students are agreed that Think Pair Share Teaching Strategy increase the students' academic achievement. Table 7 shows the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy emerged new learning ideas which make science subjects better comprehend for learners. Table 8 shows the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy is helpful for learners with peer-cooperation that enhance communication and induce responsibility. Table 9 shows the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy is helpful to take interest in the class because they do not feel the pressure engaged with peers to inquiries before the entire class. Table 10 shows the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy enhance the students participation with confidence. Table 11 shows the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy developed urge in students for learning. Table 12 shows

the result of questionnaire data analysis. It was found that both male and female students are agreed Think Pair Share Teaching Strategy enhance students' critical thinking.

5.3 Conclusion

Based on the analyzed data in the table 1 and 2, the results achieved from both tests, the pre-test and the post-test, were different. It was concluded that the students' ability of experimental group in understanding of science concepts was higher than the control group. Based on the results above, the researcher has considered Think-Pair-Share teaching strategy could be one of the effective ways to enhance the students' understanding ability.

From the table 3, it was concluded that found that both male and female students are agree that Think Pair Share Teaching Strategy increase actively participation in classroom.

From the table 4, it was concluded that both male and female students are agreed that Think Pair Share Teaching Strategy helpful to share learning problems with classmates which increase the percentage of accurate answers.

From the table 5, it was concluded that both male and female students are agreed that Think Pair Share Teaching Strategy increase the reading and writing ability of students.

From the table 6, it was concluded that both male and female students are agreed that Think Pair Share Teaching Strategy increase the students' academic achievement.

From the table 7, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy emerged new learning ideas which make science subjects better comprehend for learners.

From the table 8, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy is helpful for learners with peer-cooperation that enhance communication and induce responsibility.

From the table 9, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy is helpful to take interest in the class because they do not feel the pressure engaged with peers to inquiries before the entire class.

From the table 10, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy enhance the students participation with confidence.

From the table 11, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy developed urge in students for learning.

From the table 12, it was concluded that both male and female students are agreed Think Pair Share Teaching Strategy enhance students' critical thinking.

5.4 Recommendations

Researchers recommends the following after completion of the study:

1. Govt. may make a solid policy about the use of this strategy in classroom, especially for science students.
2. Teachers may use routinely TPS teaching strategy in their class for developing learning attitude.
3. Teachers may have to full command on TPS teaching strategy.
4. Govt. especially policy maker and curriculum planner may include the TPS teaching strategy as used in each subject in the curriculum.
5. Govt. may start the teacher training programs about the use of TPS teaching strategy as used in the classroom.
6. Further study may be done about the effect of TPS teaching strategy in secondary and higher secondary level to develop the students learning attitude.

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