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The Effects of Jigsaw, Student Teams Achievement Divisions (Stad), and Think-Pair-Share (Tps) Techniques in Writing Narrative Text

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ABSTRACT

Writing ability at The Second Semester Students in one of Private High School in Pematangsiantar indicated low enough. The aim of this research is to find out the effect of three cooperative learning techniques, namely, Jigsaw, Students Teams – Achievement Division (STAD) and Think-Pair-Share (TPS). The research design used in this study was quantitative approach with an experimental. The samples were Second Semester Students of STIKOM Tunas Bangsa Pematangsiantar. The data of this research were gained from the score Narrative Text Test that analyzed by using One Way ANNOVA. The research finding showed that (1) Jigsaw Sig. (2-tailed) value is $0.00 < 0.05$. STAD Sig. (2-tailed) value is $0.00 < 0.05$. TPS Sig. (2-tailed) value is $0.00 < 0.05$, it means Jigsaw, STAD and TPS can affect the students ability in writing. (2) The increasing percentage of Jigsaw Teaching Technique to 75%, Students Teams – Achievement Division (STAD) to 68% and Think-Pair-Share (TPS) to 57%. (3) The result of data Analysis by One Way Annona indicate that Significant values is 0.043 which is < 0.05 , and Fvalue is $3.305 > T$ Table 3.16, it means there is one Teaching Technique more significant there the other technique. Here Jigsaw Teaching Technique more Significant than STAD or TPS. In Jigsaw Teaching Technique, The mean difference is significant at the 0.05 level.

1. Introduction

There are a great number of cooperative learning techniques available. Some cooperative learning techniques utilize student pairing, while others utilize small groups of four or five students. When we study as a group, it is more give spirit to the other students because they can share knowledge together, they can solve problem together and they can motivate the other friends in the group. In a

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cooperative learning system, students learn to work with other members. In this model students have two responsibilities. They learn for themselves and help their fellow group members to learn. There are several different types of models in cooperative learning, although the basic principles of cooperative learning are not changed, the types of models are as follows: Student Teams Achievement Division (STAD), Group Investigation, Think-Pair-Share (TPS), Expert Team (Jigsaw). (Muslimin; & Ramadhan, 2017)

Writing is one of the language skills that should be owned when learning a language. Furthermore, writing is a deliberate act which it has to make up one mind to do it. It presents some information that will be informed to the reader. Writing means a process of communication that conveys ideas and opinion in written form done by the student (Purba, 2018). Writing is one of the crucial ways to deliver information through a language mastered by both the writer and the reader. Having realized the importance of English as one of the international languages in the globalization era, people consider mastering English writing skill a pivotal expertise in the world of communication (Megawati, 2012). Writing is seen as the most difficult skill to be learned among the four skills in English: listening, speaking, reading, and writing. The difficulties in writing have been one of the reasons why students see writing as a difficult skill to be learnt. Teachers need to find a suitable method in teaching writing in order to make the students improve their writing skill (Hayatunisa, 2014). (Douglas, 2004) mentions the scoring or writing aspect criteria that should be measured in writing skill, they are organization (introduction, body and conclusion), content (logical development ideas), grammar, punctuation (spelling and mechanics), and style and quality of expression. Those aspects should be measured to know the students' progression in writing.

Text is a unit of meaning which is coherence and appropriate for its context. It can be spoken or written but mostly people think that text is only in a form of a written work. When we read, we are interpreting texts. Moreover, when we talk and listen, we are also creating and interpreting texts. Marsilah in (Harahap et al., 2019) states that narrative text are imaginary stories with the aim to entertain, although sometimes there are stories which built based on real experiences stories or events. The genre of narrative is one of the most commonly read, although least understood of the other genres. Narrative is not only considered as entertaining a reader, but also it has a powerful medium for changing social opinions and attitudes. Narrative is also a genre that can easily accommodate one or more of the other genres and still remain dominant, (Knapp & Watkins, 2005). The general concept of narrative text is a text which contents about a story like a story of folktale, paragraphs fable, legend. Another definition of narrative text is a kind of text which is aimed to entertain reader or listener with the fictive or non-fictive experience. Beside the purpose, it is also deals with problematic event or unusual events (Gerot & Wignell, 1994).

Cooperative learning enhances students' academic outcome, relational skills, and mindset when working collaboratively with other members in group (Chen, 2018). Cooperative Learning is an approach that makes maximum use of

cooperative activities involving pairs and small groups of learners in the classroom (Richards & Rodgers, 2014). Cooperative Learning or CL is an instructional strategy based on the human instinct of Cooperation (Yusuf et al., 2019). Cooperative learning, one kind of “instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content” (Tran et al., 2019). As Olsen and Kagan stated that” Cooperative Learning is a group learning activity organized so that learning is independent on social structure exchange of information between learners in a group and in which each learner is held accountable for his or her own learning and is motivated to increase the learning of other”. Cooperative learning is more than group work. It is group work designed to nurture strong social interdependence amongst students (Johnson et al., 2007).

Additional by (Arends, 2012), he gives the explanation of cooperative learning technique. The following explanations are:

- a. *Student Teams Achievement Division (STAD)*, STAD was developed by Robert Slavin in John Hopkins University.
- b. *Jigsaw*, Jigsaw was developed by Elliot Aronson and his colleagues in 1997. Jigsaw are designed for students into five or six member heterogeneous study teams.
- c. *Group Investigation (GI)*, Group Investigation was originally developed by Herbert Thelen. Contrast with STAD and jigsaw, Group investigation approach involves students in planning both the topic for study and the way to proceed with their investigation.
- d. *The Structural Approach*, This approach has been developed by Spencer Kagan. Structural approach emphasizes the use of particular structures that is designed to influence students’ interaction patterns.
- e. *Think-Pair-Share (TPS)*, Think-Pair-Share strategy has grown out of the cooperative learning. It was developed by Frank Lyman (1985) and his colleagues at University of Maryland, it is an effective way to change the discourse pattern in the classroom.
- f. *Numbered Heads Together (NHT)*, Numbered Heads Together (NHT) is an approach developed by Spencer Kagan to involve more students in the review of materials covered in a lesson and to check their understanding of a lesson’s content. Instead of directing questions to the whole class.

According to (Huda, 2011) Jigsaw is the model of teaching learning where the students are set up in teams; each team member is responsible for mastering part of the learning material and teaching that part to the other team members. Jigsaw makes the students learn their friends by exchanging the information. As expressed by Lie (Rusman, 2012), that “cooperative learning model Jigsaw is a cooperative learning model By means of students studying in small groups of four to six people heterogeneously and students working together positive and responsible interdependence independently”. The Jigsaw type of cooperative learning model encourages students to remember and understand the subject matter (Saputra et al., 2019).

Student Teams Achievement Divisions (STAD) is “a cooperative learning method developed by Slavin and his colleagues which has been influential in bringing positive effects in multiple grades and subjects” (Alijanian, 2012). STAD type cooperative learning method is one type of cooperative learning model by using small groups with the number of members of each group of 4 to 5 students. It is started with the delivery of learning objectives, delivery of materials, group activities, quizzes and group awards (Al-Tabany, 2014). STAD model cooperative learning steps delivery of goals and motivation, group division, percentage of teachers, team learning activities (Teamwork), evaluation, team achievement awards.

Think-Pair-Share is introduced by Dr. Frank Lyman, University of Maryland Instructor and educational consultant. Think-Pair-Share technique has been a foundational tool in cooperative learning it can be applied such as in many classroom, workshop, and training rooms. When the facilitator asks the audience a question, the some few people answer enthusiastically, while the rest just sit passively. Think-Pair-Share (TPS) is a technique designed to provide students with ‘food for thought’ on a given topics enabling them to formulate individual ideas and share these ideas with another student. Teachers announce a discussion topic or problem to solve. Give students at least 10 seconds of think time to THINK of their own answer (Desi et al., 2013).

The researcher chooses these 3 techniques because the researcher interest in and want to compare these 3 techniques. The researcher want to know what techniques of Cooperative Learning that more effective to increase the students’ ability to write Narrative Text. Here the researcher has aimed to compare Cooperative Learning technique those are the effect of Jigsaw, Student Teams Achievement Divisions (STAD), Think-Pair-Share (TPS) in writing narrative text.

2. Methodology

Research Design

This research design is quantitative approach with an experimental design. This research use Cluster Sampling Design.

Table 1. Table Research Design

Group	Pre Test	Treatment	Post Test
Group 1	Y ₁	T1,T2, T3... of Jigsaw Technique	Y ₂
Group 2	Y ₁	T1,T2, T3... of STAD Technique	Y ₂
Group 3	Y ₁	T1,T2, T3... of TPS Technique	Y ₂

Where:

Y1 : The students’ writing ability before getting treatment (Pre Test)

Y2 : The Students’ writing ability after getting treatment (Post Test).

The participant of this research is Second Semester Students of STIKOM Tunas Bangsa Pematangsiantar in academic year of 2019 – 2020. There are eight parallel classes. The researcher take 20 % for the sample, because the population more than 100%. The sample of this research is focused in three class that consist of 65 students as the sampling.

The Instrument

The instrument is an equipment of facility used by a researcher in collecting data to make complete and systematic research so that the data can be easily analyzed (Cipta, n.d.). The instrument used by the writer in this research is a test. Writing a narrative text was used as the instrument of the study Generic structure and Lexicogrammatical Features.

Table 2. Assessment Aspect Of Writing Narrative Essay

No	Aspects Assessed	Score
1	Social Function (Content) Generic Structure (Organization)	30
2	a. Orientation b. Complication c. Resolution	20
3	Vocabulary Grammatical Features	20
4	a. Action Verbs b. Relational Verbs c. Simple Past Tense	25
5	Mechanic (Spelling & Punctuation)	5
Total		100

Technique of Data Collection

Technique of data collection in this research used quantitative data. The quantitative data used test as the instrument which was used to collect the data of the research (score). The test was distributed through pre test and post test. The researcher applied the technique collecting data was writing test. To administer the writing test, the researcher uses an analytic score in order to be more reliable in scoring students' writing. The score consist of : Social Function (Content)+ Social Function (Organization)+ Vocabulary+ Grammatical Features + Spelling & Punctuation = Total score.

Table 3. Total Score

Categorization	Score
Very Weak	Score 10 - 30
Weak	Score 31 - 55
Enough	Score 56 – 75
Good	Score 76 - 85
Excellent	Score 86 – 100

Technique of Data Analysis

In analysis the data, the research was tested: Description analysis for describing the Research data including Mean, Median, Mode, Variance and Standard Deviation. The data is presented in the table of frequency distribution and Histogram by using SPSS program. Then, Inferential analysis for measuring the Hypothesis which is done by One Way Analysis of Variance (ANOVA).

3. Results and Discussion

Result

1. The Students' Narrative Writing Achievement Before and After taught by using Jigsaw Teaching Technique (Group 1)

The results of students' narrative writing achievement that taught by using Jigsaw Technique indicates that in the Pre Test the highest score is 55 and the lowest score is 40 and in the Post Test the highest score is 94 and the lowest score is 68. In the Pre Test, the mean of students' narrative writing achievement is 46,86 but in The Post Test, mean of students' narrative writing achievement is 82,23. The result of the Pre Test and Post Test of the students' that taught by using Jigsaw Technique can be observed in table 4 below.

Table 4. Data Description of Jigsaw Teaching Technique

Statistics		Pre Test Jigsaw	Post Test Jigsaw
N	Valid	22	22
	Missing	0	0
Mean		46.86	82.23
Std. Error of Mean		.848	1.299
Median		47.00	82.50
Mode		45	82
Std. Deviation		3.980	6.094
Variance		15.838	37.136
Range		15	26
Minimum		40	68
Maximum		55	94
Sum		1031	1809

We can see the effect of Jigsaw Teaching Technique from the T – Test on table 5. The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we applied Jigsaw Teaching Technique. We can conclude that, there is the effect of Jigsaw Teaching Technique on students' Narrative Writing Achievement

Table 5. T – Test of Jigsaw Teaching Technique

Paired Samples Test		Paired Differences		95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper				
Pair 1	Post Test Score - Pre Test Score	35.36	5.048	1.076	33.126	37.602	32.86	21	.000
		4					0		

The increasing percentage of Jigsaw Teaching Technique can see below.

$$\begin{aligned}
 \text{Percentage of Data} &= \frac{\text{Mean Post Test} - \text{Mean Pre test}}{\text{Mean Pre Test}} \times 100\% \\
 &= \frac{82.23 - 46.86}{46.86} \times 100\% \\
 &= \frac{35,37}{46.86} \times 100\% \\
 &= 0,7548 \times 100\% \\
 &= 75,48\% = 75\%
 \end{aligned}$$

2. The Students' Narrative Writing Achievement Before and After taught by using Student Teams Achievement Divisions (STAD) Teaching Technique (Group 2)

The results of students' narrative writing achievement that taught by using STAD Technique indicates that in the Pre Test the highest score is 69 and the lowest score is 35 and in the Post Test the highest score is 92 and the lowest score is 59. In the Pre Test, the mean of students' narrative writing achievement is 45,95 but in The Post Test , mean of students' narrative writing achievement is 77,18. The result of the Pre Test and Post Test of the students' that taught by using STAD Technique can be observed in table 6 below.

Table 6. Data Description STAD Teaching Technique

Statistics	Pre Test STAD	Post Test STAD
Valid	22	22
Missing	0	0
Mean	45.95	77.18
Std. Error of Mean	1.731	1.692
Median	44.00	77.00
Mode	40	77
Std. Deviation	8.121	7.938
Variance	65.950	63.013
Range	34	33
Minimum	35	59
Maximum	69	92
Sum	1011	1698

We can see the effect of STAD Teaching Technique from the T – Test on table 7. The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we applied STAD Teaching Technique. We can conclude that, there is the effect of STAD Teaching Technique on students' Narrative Writing Achievement.

Table 7. T – Test of STAD Teaching Technique

Paired Samples Test		Paired Differences			95% Interval Difference Lower	Confidence of the Upper	t	df	Sig. (2- tailed)
		Mean	Std. Deviation	Std. Error Mean					
Pair 1	Post Test Score - Pre Test Score	31.227	8.269	1.763	27.561	34.893	17.713	21	.000

The increasing percentage of STAD Teaching Technique can see below.

$$\begin{aligned}
 \text{Percentage of Data} &= \frac{\text{Mean Post Test} - \text{Mean Pre test}}{\text{Mean Pre Test}} \times 100\% \\
 &= \frac{77.18 - 45.95}{45.95} \times 100\% \\
 &= \frac{31.23}{45.95} \times 100\% \\
 &= 0.6796 \times 100\% \\
 &= 67.96\% = 68\%
 \end{aligned}$$

3. The Students' Narrative Writing Achievement Before and After taught by using TPS Teaching Technique (Group 3)

The results of students' narrative writing achievement that taught by using TPS Technique indicates that in the Pre Test the highest score is 68 and the lowest score is 36 and in the Post Test the highest score is 91 and the lowest score is 59. In the Pre Test, the mean of students' narrative writing achievement is 49,19 but in The Post Test , mean of students' narrative writing achievement is 77,05. The result of the Pre Test and Post Test of the students' that taught by using TPS Technique can be observed in table 8 below.

Table 8. Data Description TPS Teaching Technique

Statistics		Pre_Test_TPS	Post_Test_TPS
N	Valid	21	21
	Missing	0	0
Mean		49.19	77.05
Std. Error of Mean		1.858	1.868
Median		47.00	76.00
Mode		45	73 ^a
Std. Deviation		8.512	8.558

Variance	72.462	73.248
Range	32	32
Minimum	36	59
Maximum	68	91
Sum	1033	1618
a. Multiple modes exist. The smallest score is shown		

We can see the effect of TPS Teaching Technique from the T – Test on table 9 The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we applied TPS Teaching Technique. We can conclude that there is the effect of TPS Teaching Technique on students' Narrative Writing Achievement.

Table 9. T – Test of TPS Teaching Technique

Paired Samples Test		Paired Differences						t	df	Sig. (2-tailed)
Pair	Post Test Score - Pre Test Score	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
		n			Lower	Upper				
1		27.85	9.457	2.064	23.553	32.162	13.49	20	.000	
		7					9			

The increasing percentage of Think Pair Share (TPS) Teaching Technique can see below.

$$\begin{aligned}
 \text{Percentage of Data} &= \frac{\text{Mean Post Test} - \text{Mean Pre test}}{\text{Mean Pre Test}} \times 100\% \\
 &= \frac{77.05 - 49.19}{49.19} \times 100\% \\
 &= \frac{27.86}{49.19} \times 100\% \\
 &= 0.5663 \times 100\% \\
 &= 56,63\% = 57\%
 \end{aligned}$$

The Requirement Analysis of Variance (ANOVA)

Before the Research data were analyzed by using One Way Analysis of Variance (ANOVA), the normality and Homogeneity of data were tested.

1. Testing of Normality

The Normality Test aims at showing that the sample data of the study is normality distributed. The normality test applied in this study was Kolmogorov - Smirnov using SPSS 19.00 program on $\alpha = 0,05$ significant level normality test data of this study included data result test of the achievement Normality test Data of Jigsaw Technique, STAD Technique and TPS Technique. The result of Normality Test of the students' show that Sig. value of Jigsaw Teaching Technique 0.113 which is > 0.05 , Sig. value of STAD Teaching Technique 0.107 which is > 0.05 , and Sig.

value of TPS Teaching Technique 0.200 which is > 0.05 . It can be seen in table 10 as below.

Table 10. Testing of Normality

Value	Group	Kolmogorov-Smirnov ^a		Sig.
		Statistic	df	
	JIGSAW	.167	22	.113
	STAD	.168	22	.107
	TPS	.109	21	.200*

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance.

Based on the result of calculation described in table 12 above and the criteria of Normality Test, it is concluded that all data in this study had normal distribution.

2. Testing of Homogeneity

The Homogeneity Test aims at investigating whether variance of the data is homogeneous. The Homogeneity Test of variance was calculated by using Levene test by using SPSS 19.00 program for learning model and students' personality and interaction groups. The result of Homogeneity Test of the students' show that Sig. value 0.343 which is > 0.05 . It can be seen in table 11.

Table 11. Testing of Homogeneity

Test of Homogeneity of Variances				
Value				
Levene Statistic	df1	df2	Sig.	
1.088	2	62	.343	

Based on the computation of the Homogeneity Test, it is found that Sig. value 0.343 which is > 0.05 . Thus variance is Homogeneous.

3. Testing Hypothesis

The Research Hypothesis was tested by using One Way Analysis of Variance (ANOVA) by using SPSS Program. The all data can be seen in the table 12.

Table 12. The summary of calculation result of One - Way Anova of The test between the subject effects

ANOVA						
Value						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	380.373	2	190.186	3.305	.043	
Within Groups	3568.089	62	57.550			
Total	3948.462	64				

The result of data Analysis indicate that Significant value is 0.043 which is <0.05 , and F_{value} is $3.305 > F_{\text{Table}} 3.16$. Thus Null Hypothesis (H_0) is rejected at the Level of Significant 0.05. There for, it can conclude that there is significant effect between the mean achievement scores of Jigsaw Technique, STAD or TPS Technique. Therefore, it concluded that the Research Hypothesis which states that Jigsaw Technique, STAD technique or TPS technique affect students ability in writing narrative Text is true in this thesis.

4. The Differences Among Jigsaw Technique, Student Teams Achievement Divisions or Think-Pair-Share (TPS) Teaching Technique

The differences among Jigsaw Technique, Student Teams Achievement Divisions (STAD) technique or Think-Pair-Share (TPS) technique can be seen in table 14.

Table 14. The differences among Jigsaw, STAD and TPS technique

Multiple Comparisons		Dependent Variable: Value					
	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
LSD	JIGSAW	STAD	5.045*	2.287	.031	.47	9.62
		TPS	5.180*	2.314	.029	.55	9.81
	STAD	JIGSAW	-5.045*	2.287	.031	-9.62	-.47
		TPS	.134	2.314	.954	-4.49	4.76
	TPS	JIGSAW	-5.180*	2.314	.029	-9.81	-.55
		STAD	-.134	2.314	.954	-4.76	4.49

*. The mean difference is significant at the 0.05 level.

We can be seen the Mean difference that Jigsaw Technique more affect the students' ability in Writing Narrative Text than STAD or TPS technique. If we compare Jigsaw and STAD, we can see the mean difference to 5.045. Then, if we compare Jigsaw and TPS, we can see the mean difference to 5.180. There for, it can conclude that Jigsaw most significant than the STAD or TPS technique. But if we see compare STAD and TPS, we can see the mean difference to 0,134. It can conclude that STAD more significant than TPS. And the Jigsaw is one of the three techniques is most significant than two others.

Discussion

Every Teaching techniques can affect the Students' Ability in writing narrative Text. The results of students' narrative writing achievement that taught by using Jigsaw Technique indicates that in the Pre Test the highest score is 55 and the lowest score is 40 and in the Post Test the highest score is 94 and the lowest score is 68. In the Pre Test, the median of students' narrative writing achievement is 46,86 but in The Post Test , mean of students' narrative writing achievement is 82,23. On T – Test of Jigsaw Teaching Technique show that The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we

applied Jigsaw Teaching Technique. We can conclude that, there is the effect of Jigsaw Teaching Technique on students' Narrative Writing Achievement.

The results of students' narrative writing achievement that taught by using STAD Technique indicates that in the Pre Test the highest score is 69 and the lowest score is 35 and in the Post Test the highest score is 92 and the lowest score is 59. In the Pre Test, the median of students' narrative writing achievement is 45,95 but in The Post Test, mean of students' narrative writing achievement is 77,18. On T – Test of STAD Teaching Technique show that The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we applied STAD Teaching Technique. We can conclude that, there is the effect of STAD Teaching Technique on students' Narrative Writing Achievement.

The results of students' narrative writing achievement that taught by using TPS Technique indicates that in the Pre Test the highest score is 68 and the lowest score is 36 and in the Post Test the highest score is 91 and the lowest score is 59. In the Pre Test, the median of students' narrative writing achievement is 49,19 but in The Post Test, mean of students' narrative writing achievement is 77,05. On T – Test of TPS Teaching Technique show that The Sig. (2-tailed) value is $0.00 < 0.05$. It's mean, there is the difference score before and after we applied TPS Teaching Technique. We can conclude that there is the effect of TPS Teaching Technique on students' Narrative Writing Achievement.

The result of this research show that there are interaction between Jigsaw, STAD and TPS Teaching Technique on Students' Narrative Writing Achievement. There are some Teaching Technique in Cooperative Learning Method, but in this research the researcher used 3 Teaching Technique. Based on explanation above the research assumes that Jigsaw Teaching Technique more significant to affect the students' ability in Writing Narrative Text than STAD Teaching Technique or TPS Teaching Technique

4. Conclusion

Based on the data analysis and testing hypothesis, the researcher can conclude that : There are the effects of Jigsaw, STAD and TPS Teaching Technique Teaching Technique in writing narrative text on students' achievement. Here, Jigsaw Teaching Technique most significant to affect the students' ability in Writing Narrative Text than STAD Teaching Technique or TPS Teaching Technique. In Jigsaw Teaching Technique, The mean difference is significant at the 0.05 level.

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