Implementing NHT and TGT to Enhance Students' Knowledge of Passive and Active Voice Construction: Comparative Study

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Abstract

This study intends to find out what is the initial knowledge of the students before they were treated using Numbered Heads Together (NHT) and Team Games Tournament (TGT), ascertain of the significant difference between these two teaching strategies, and to know the responses of the students after they taught using Numbered Heads Together and Team Games Tournament are the aims of this research. This is a quantitative study with comparative design to know the students' knowledge of active and passive construction test. The research instrument of this study is pre-and-posttest. This study was conducted among seventh-grade students at SMPN 10 Cimahi. The results of this study showed that the initial score for both respondents is quite similar to the score for NHT group is 59.07 and for TGT group is 58.33. It is also known that there is a significant difference in students' knowledge on active and passive voice construction between students who are taught with Numbered Heads Together and those who are taught with Team Games Tournament showed by the result of the mean differences from both groups are 0.005 < 0.05. The questionnaire's result also supports that both teaching strategies are eligible to be applied in teaching active and passive voice construction with the score for NHT class is 64.83% and for the TGT class is 63.34%, it can be categorized as "Good". It implies that the implementation of Numbered Heads Together and Team Games Tournament enhances student's knowledge of active and passive voice construction.

Keywords: *Active and Passive Voice Construction, Cooperative Learning, Numbered Heads Together, Team Games Tourname*

Introduction

Grammar is known as a union of words in the sentence which has its functions to deliver the meaning in a communication. River (1987) defined grammar as a set of formal patterns in which the words are arranged to convey a large meaning. Isnaini (2014) stated that grammar is also a set of rules which plays an important role in the existence of the four language skills because grammar is the basis of English. In addition, Loewen (2009, cited in Polat, 2017) stated that teaching grammar with its accuracy has been considered as the rudimentary elements to assist English learners to utilize English as means of communication in their target language.

Indonesian students often experience problems when learning English, because English differs from Bahasa Indonesia (the Indonesian language) in its structure, pronunciation, and vocabulary (Katemba, 2019). To achieve the objective in learning English, there are current issues in learning English grammar that Indonesian learner faces. "In Indonesian schools, however, the teaching of English consists mainly of learning correct grammatical structures or forms, increasing vocabularies, working on exercises on the sentence level, and asking students to repeat over and over similar structures" (Katemba,2013). The other problem in learning English by Indonesian learner is transforming English active voice into a passive voice which caused by difference of sentence patterns and tenses of English (Setyowati, 2006). The use of subject-verb agreement which somehow does not exist in the Indonesian language causes mistakes in constructing an active and passive voice (Vahdatinejad,2008). Indonesian learners, according to Andayanti (2010), have difficulties in using 'to be' as the main verb or auxiliary verb corresponded with the subject as its antecedence in a sentence. Moreover, identifying the parts of speech in sentences also being a problem in learning grammar; some students cannot determine where the subjects, objects, and predicates are in sentences (Al-Makhzoomi & Awad, 2010).

 Concerned with these issues, to enhance students' knowledge in constructing a correct active and passive voice, researcher proposes to use cooperative learning techniques, Numbered Heads Together (NHT) and Team Games Tournaments (TGT) to deal with the issues. Cooperative learning refers to methods of instruction that organize classroom instruction so that groups of 4-5 students work together to reach a common goal. Cooperative learning is more effective to increase learning and improve students' achievement (Campbell & Rutherford, 2000) and the students will be more active in developing their structure. The crucial elements of cooperative learning (Johnson, Johnson, & Holubec, 1994) are positive interdependence, individual accountability, group processing, social skills, and face-to-face interaction.

This study examines the following concerns: (1). What is the initial knowledge of the students on voice construction before the treatment is given? (2). Is there any significant difference between the use of NHT and TGT to enhance students' knowledge in constructing active and passive voice? (3). What are the student's responses after they are taught using NHT and TGT strategies?

In regard to the research questions above, the hypotheses of this study are:

Null Hypothesis (Ho):   There is no significant difference between students who are taught using NHT technique and students who are taught using TGT technique to enhance students' knowledge in constructing active and passive voice.
Alternative Hypothesis (Ha):
 There is a significant difference between students who are taught using NHT technique and students who are taught using TGT technique to enhance students' knowledge in constructing active and passive voice.

Literature Review

A. Sentence Structure

A sentence is a set of words that convey meaning and also expresses a complete thought (Greenbaum & Nelson, 2002). Sentence structure is the way a sentence is arranged, it is the way a sentence being organized grammatically. The sentence structure includes the noun and verb within an individual sentence. The two most basic of a sentence structure are the subject and predicate. The subject will be the one appears in a sentence, it can be a noun or pronouns, while the predicate is the verb or the word that tells the action performed by the subject in a sentence. Therefore, in order to have good writing, people should have a decent understanding of sentence structure. So, the one basic concept to learn at the beginning of writing is parts of speech. Sentences may be constructed either actively or passively which called active and passive voice. Both voices give the meaning in scientific and academic writings.

B. Active and Passive Construction

Active Voice helps the subject perform the action, it can be said that an active sentence, the primary focus is on the subject or the agent or doer of the action (Christensen, Sasaki & Sasaki, 2009). It brings clearer and concise expression rather than passive voice.
Passive voice is common in scientific writing because authors in this discipline like to pay more emphasis on facts than in subjects (who does the research). Passive constructions in English allow the speaker to avoid mentioning the actor. This is sometimes necessary or desired because the actor is not known, is obvious, or is not important, or because the action is something that can be done by anyone (Sneddon, 2012). Passive voice sentences necessarily add words and change the normal doer-action-receiver of action direction, they may make the reader work harder to understand the intended meaning.

C. Students' Challenges in Constructing Active and Passive Voice

As discussed in chapter one, in constructing voices sentence, Indonesian learners face several challenges. The first is understanding of parts of speech such as nouns and pronouns (as the subject in a sentence), and also the verb as the word action in a sentence. Christensen, Sasaki, and Sasaki (2009) also emphasized that the students in constructing passive voice, the subject, and object are often placed away from each other, or in reserve order. The second is the use of subject-verb

agreement which somehow does not exist in the Indonesian language caused mistakes in constructing an active and passive voice (Vahdatinejad, 2008). Indonesian learners have difficulties in using 'to be' as the main verb or auxiliary verb corresponded with the subject as its antecedence in a sentence emphasized by Andayanti (2010) and Al-Makhzoomi and Awad (2010).

D. Cooperative Learning

 In order to have an effective way of teaching big classes, teachers usually use cooperative learning strategies. Cooperative learning is built on the basis of human nature; human beings cannot survive without cooperating with others, it also tends to be more attractive ways in learning, because it changes the atmosphere of the class become more fun (Johnson & Johnson, 1994). Indeed, Kagan (2009) stressed that cooperative learning engages students to work harder than they do in a conventional classroom.

E. Numbered Heads Together

According to Slavin (2008), in NHT type cooperative learning students more responsible for the tasks given because in cooperative learning NHT type students in groups are given different numbers. Each student is charged to solve a question that matches their member numbers. The advantages in using this technique according to Lie (2010), it provides wider opportunities for learners to share ideas and considers the most appropriate problem solving, which encourages learners to improve the spirit of cooperation in solving problems. Moreover, NHT will improve self-esteem, the conflict between personal will be diminished, students will have a deeper understanding as all the members will be actively involved in learning, and also it will improve the attendance of the students since if they are absent, then they will not be able to help their group members (Nardi, 2011).
 Even though NHT has lots of advantages, there also emerged disadvantages in using this technique. This learning techniques tend to be crowded if the teacher could not properly manage the condition of the classroom especially if the class has a large number of students (Febriani, 2016). Therefore, the teacher should have good management of the class.

F. Team Games Tournaments

Cooperative learning has many strategies, one of them is Team Games Tournament (TGT). TGT was developed by Robert Slavin and friends. In TGT students divided into four or five students who have a different level of ability, gender, and the ethnic background (Slavin, 2008). The main idea of TGT is to motivate students to support and help each other in learning.

Methodology

In this research, the researcher used comparative design to compare the students' knowledge enhancement about Active and Passive Voice Construction by using

TGT and NHT between the comparative groups. By using these strategies students were divided into groups and would work together in a group as a team. In the beginning, the two groups were given pretest to know the ability of the respondent. After that, both groups were treated with different treatment and finally, at the end of the meeting, both groups had a post-test to see whether there is an enhancement on active and passive voice construction knowledge or not.

Table 1
Research Design

Class	Pre-test	Treatment	Post-test
1	T	X1	T
2	T	X2	T

Where:
T: The students' knowledge of voices construction
    X1: Students' learning by NHT
    X2: Students' learning by TGT

Population and Sample

The population of the research was seventh-grade students of SMPN 10 Cimahi, Bandung. The two classes were treated in two different strategies of a cooperative learning strategy.

Research Instrument

The instruments are a pilot test, pre-test, post-test, and non-test (questionnaire). The pre-test and post-test are multiple choice questions; these instruments are used to discover students' prior ability on sentence patterns, subject-verb agreement, past participle and also the parts of speech such as subject, object, and verbs. The test consists of 43 questions. The number of questions is retrieved after analyzing the Pilot Test.

Procedures of Data Collection

In gathering data, the researcher used the following steps:

        Conducting the Pilot Test

 The pilot test was conducted on the seventh-grader of SMPN 10 Cimahi. The objective of the pilot test was to check the validity, reliability, discrimination, and difficulty level of the test by using the SPSS program. After collecting the data, the researcher analyzed the data by using Anates program.

Conducting Pre-test

A pre-test was given to both comparative groups. A pre-test was conducted before applying the treatment to diagnose student's enhancement in constructing passive voice. It is multiple choices that focus on sentence structure, subject-verb agreement, and also parts of speech. Postlethwaite (2005) defines the test as an instrument or procedure that proposes a sequence of tasks to elicit students' response. The test should be valid and reliable in order to get accurate data.

Giving Treatment

After administering the pre-test, the treatment was given to both of the classes. The procedures of teaching through NHT are adopted by Mardiyah (2015) while the procedures of teaching through TGT are adopted by Fitriyanto (2014).

Table 2. Procedures of Strategies

Procedures of Numbered Heads Together (NHT)	Procedures of Team Games Tournament (TGT)
First step: Teacher gave the materials about Active and Passive Voice construction **Second step:** Teacher divided class into groups (contain 4 or 5 students) **Third step:** Students counted off in each group, students count off by the number of students in the group. **Fourth step:** Posed a question or problem The teacher poses a question or problem to the class and tells groups they have a specific amount of time to come to a consensus on an answer. The amount of time allotted will depend on whether the question is one with a specific "right" answer or a more open-ended question. **Fifth step:** Students put heads together The students put their heads together to make sure that everyone in the group has the answer or answers. **Sixth step:** Teacher called a number The teacher calls a number (e.g: 1, 2, 3, 4, 5), all students with that number stand. One of the standing students is called upon to give their group's answer. Standing students with the	**First step:** Teacher gave the rules of TGT strategies, and gave the objective of learning. **Second step:** Teacher divided class into groups (contained 4 or 5 students) **Third step:** Teacher gave the worksheet about passive voice construction that should be done together and cooperatively. **Fourth step:** After finished their work, the teacher randomly gave a simple quiz or games related to passive voice construction. Every correct answers will be added to the groups' score **Fifth step:** Tournament table: Have questions card available for each tournament table. **Sixth step:** the First team took the card and read the question. If the teams couldn't answer than the next group will have a chance to answer. The game proceeds clockwise. **Seventh step:** the last ten minutes, the teacher calculated each point that

Procedures of Numbered Heads Together (NHT)	Procedures of Team Games Tournament (TGT)
different answer can be called upon to explain their group's thinking. The teacher chooses answers that will be discussed.	has been gotten by each team and the highest score got the reward. **Eight steps:** The teacher reviewed the lesson and read the gained score by each group.

Post-test

A post-test was conducted to check the result after applying the treatment using TGT and NHT strategies, at the end of the meetings. The post-test which contains the same question with a pre-test in the different arrangement was administered to both comparative groups.

Data Analysis on Pilot Test

The pilot test was conducted to measure the validity, reliability, level of difficulty and discrimination of the instrument. Baker (1994) stated that a pilot test can also be the pre-testing or 'trying out' of a particular research instrument.

Validity

Validity test was intended to find out whether the instrument is appropriate to be used in this research. Suherman (2003) proved that the validity of an instrument depends on the constancy of the tool that is used. The following is the formula according to Suherman (2003) for calculating the validity of the instrument.

$$r_{xy} = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{n(\sum X^2 - (\sum X)^2) - (n(\sum Y^2 - (\sum Y)^2))}}$$

Where:

r_{xy} : Validity Coefficient between x and y variables

n : Total number of participants

X: Participant's score of the item score

Y: Participant's score of the whole item test

The criteria for Coefficient Correlation according to Suherman (2003) is shown in table 3.

Table 3. Coefficient Correlation (Validity)

r_{xy}	Interpretation
≤ 0.00	Not Valid
0.00 – 0.20	Very Low
0.21 – 0.40	Low
0.41 – 0.60	Moderate
0.61 – 0.80	High
0.81 – 1.00	Very High

The result is as follows:

Table 4

Number of Question	r_{xy}	Interpretation
-	$0.80 \leq r_{xy} \leq 1.00$	Very High
1,3,7,8,9,11,14,21,29,31,36, 37,42,47,49	$0{,}60 < r_{xy} \leq 0{,}80$	High
5,10,13,15,18,19,20,23,24, 26,27,28,35,38,39,40,44,45,46,48,	$0{,}40 < r_{xy} \leq 0{,}60$	Moderate
2,6,12,16,17,22,41,43,	$0{,}20 < r_{xy} \leq 0{,}40$	Low
4,25,30,32,33,34,50	$0{,}00 < r_{xy} \leq 0{,}20$	Very Low
-	$r_{xy} \leq 0{,}00$	Not Valid

Based on the result above, there were 15 items that were high. There were, 20 items that moderate, 8 items low, 7 items were very low. Therefore, it can be concluded that the items that categorized as very low are not valid.

Reliability

Reliability of a test was used to evaluate the test result in the same subject. According, Suherman (2003) the reliability to measure the instrument is a tool that finds out the result that is consistent in the same subject. According to Suherman (2013), the formula is following this:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(1 - \frac{\sum S_i^2}{S_t^2}\right)$$

Where:

r_{11} : Reliability of the instrument

n: Number of questions

S_i^2: a total of variance scores each item

S_t^2: a total of variance score

The criteria of reliability according to Suherman (2003) is shown in table 3.5.

Table 5. Interpretation of Reliability

Coefficient Reliability	Interpretation
$0.90 < r_{11} \leq 1.00$	Very High
$0.70 < r_{11} \leq 0.90$	High
$0.40 < r_{11} \leq 0.70$	Moderate
$0.20 < r_{11} \leq 0.40$	Low
$r_{11} < 0.20$	Very Low

The result is as follows:

Table 6

Mean	20.59
Correlation XY	0.86
Reliability	0.92

Based on the result of reliability 0.92, then it can be categorized as very high.

Level of Difficulty

To determine whether the questions are appropriate for the students, an analysis of difficulty level was conducted.
The formula based on Suherman (2003) as follows:

$$IK = \frac{JB_A + JB_B}{JS_A + JS_B}$$

Where:

IK: Level of difficulty
JB_A : number of correct answers from the upper group
JB_B : number of correct answers from the lower group
JS_A : number of students from the upper group
JS_B : number of students from the lower group

Table 7. Interpretation of Difficulty Level

Tk (Level of Difficulty)	Interpretation
0.71 - 1.00	Easy
0.31 - 0.70	Moderate
0.00 - 0.30	Difficult

The result is as follows:

Table 8. Index of difficulty level

Number	Level of Difficulty	Difficulty Degree
27,44	0.71 – 1.00	Easy
1,2,3,4,5,6,7,8,10,11,12,13,14,15,16 17,18,19,20,21,22,23,24,25,26,28,29,30 31,35,36,37,39,40,41,42,43,46,47,49	0.31 – 0.70	Moderate
9,32,33,34,38,45,48,50	0.00 – 0.30	Difficult

Based on the result above, there were 2 items that were easy, 39 items that were moderate and 9 items were difficult. Due to its difficulty level, the researcher consulted the result to her adviser regarding all items; after consultation, there were 2 numbers of items that were modified: questions number 16 and 50.

Discrimination Index

The calculation was done to determine the discrimination between high-ability students and low-ability students according to Suherman (2003) using the formula as follows:

$$DP = \frac{JB_A - JB_B}{JS_A}$$

or

$$DP = \frac{JB_A - JB_B}{JS_B}$$

Where:

JB_A = Total student of the upper group which answer correctly or number of correct answers for the upper group

JB_B = Total of students of the lower group who answer correctly or number
of the correct answer for the lower group

JS_A = Number of student upper group

JS_B = Number of student lower group

Table 9. Criteria of Discrimination

Level	Interpretation
< 0.00	Very Bad
0.00 - 0.20	Bad
0.21 - 0.40	Satisfactory
0.41 - 0.70	Good
0.71 – 1.00	Excellent

The result as follows:

Table 10. Discrimination Index

Number of Question	Discrimination Index	Interpretation
33,34	< 0.00	Very Bad
4,30,32,50	0.00 - 0.20	Poor
2,6,12,16,17,22,25,26	0.21 - 0.40	Satisfactory
5,7,9,10,13,15,19,20,24,27, 35,38,39,41,43,44,45,46,48, 49	0.41 - 0.70	Good
1,3,8,11,14,18,21,23,28,29, 31,36,37,40,42,47	0.71 – 1.00	Excellent

Based on the table above, there were 2 items in the very bad category, 4 questions in the poor category, 8 items in a satisfactory category, 20 items in good category and 16 items in the excellent category.

The Result of Recapitulation of Pilot Test

This research used 43 questions for pre-test and post-test. To analyze the result of the data, the Anates program was used. The recapitulation of the test result can be seen in table 3.11.

Table 11. The Recapitulation of Pilot Test

Number of questions	Validity	Difficulty level	Discrimination
1	High	Moderate	Excellent
2	Low	Moderate	Satisfactory
3	High	Moderate	Excellent
4	Very Low	Moderate	Poor
5	Moderate	Moderate	Good
6	Low	Moderate	Satisfactory
7	High	Moderate	Good
8	High	Moderate	Excellent
9	High	Difficult	Good
10	Moderate	Moderate	Good
11	High	Moderate	Excellent
12	Low	Moderate	Satisfactory
13	Moderate	Moderate	Good
14	High	Moderate	Excellent
15	Moderate	Moderate	Good
16	Low	Moderate	Satisfactory
17	Low	Moderate	Satisfactory
18	Moderate	Moderate	Excellent
19	Moderate	Moderate	Good
20	Moderate	Moderate	Good
21	High	Moderate	Excellent
22	Low	Moderate	Satisfactory
23	Moderate	Moderate	Excellent
24	Moderate	Moderate	Good
25	Very Low	Moderate	Satisfactory
26	Moderate	Moderate	Satisfactory
27	Moderate	Easy	Good
28	Moderate	Moderate	Excellent
29	High	Moderate	Excellent
30	Very Low	Moderate	Poor
31	High	Moderate	Excellent
32	Very Low	Moderate	Poor
33	Very Low	Difficult	Good
34	Very Low	Difficult	Good
35	Moderate	Moderate	Good
36	High	Moderate	Excellent

37	High	Moderate	Excellent
38	Moderate	Moderate	Good
39	Moderate	Moderate	Good
40	Moderate	Moderate	Excellent
41	Low	Moderate	Good
42	High	Moderate	Excellent
43	Low	Moderate	Good
44	Moderate	Easy	Good
45	Moderate	Difficult	Good
46	Moderate	Moderate	Good
47	High	Moderate	Excellent
48	Moderate	Difficult	Good
49	High	Moderate	Good
50	Very Low	Difficult	Poor

Based on the recapitulation test, this research used 43 questions for pre-test and post-test. They were question number: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 15, 17, 18, 19, 20, 21, 23, 24, 25, 36, 27, 28, 29, 31, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50. Those are based on the result of questions analysis; that the 43 questions will be able to measure the students' knowledge in voice construction.

Non-test Instrument (Student's Response Questionnaire)

The non-test instrument was given to the students in order to know the students' response toward the lesson and strategy that were used in the teaching-learning process. this questionnaire was given after the post-test conducted. The statements in the questionnaire are about NHT and TGT in enhancing the students' knowledge of active and passive voice construction.

There are four alternate answers in this questionnaire, those are: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD). The completed questionnaire is classified by Arikunto (2012) as follows:
The calculation of a number of positive responses for each item is on positive items, Strongly Agree (SA), Agree (A), and the negative items, Disagree (D), Strongly Disagree (SD).
The Percentage was calculated according to Arikunto (1991) using the following presentation formula as follows:

Table 12. Scoring of Student's Response with Positive Item Type

Alternative Answer	Score
Strongly Agree	4
Agree	3
Slightly agree	2
Disagree	1

 For the questionnaire with the negative item, the scoring reversed, so the criteria are as follow.

Table 13. Scoring of Student's Response with Negative Item Type

Alternative Answer	Score
Strongly Agree	1
Agree	2
Slightly agree	3
Disagree	4

The questionnaire has 10 statements, so the maximum score for the questionnaire is 40 and the minimum score is 10. After the data obtained, then the percentage of student response was calculated with this formula:

Where,
R_i = Student i response score
S_i = Total of score item of stu
S_{max} = Maximum score
$$R_i = \frac{S_i}{S_{maks}} \, x100$$

Table 14. Interpretation of students' Response

Degree in Percentage	Interpretation
$80 \leq t \leq 100$	Very Good
$60 \leq t \leq 80$	Good
$40 \leq t \leq 60$	Moderate
$20 \leq t \leq 40$	Bad
$t \leq 20$	Very Bad

Statistical Treatment

The researcher utilized the Statistical Package for Social Science (SPSS) 16 to calculate the data. SPSS is a kind of computer program for statistical computation. The level of significance is 5%. (0.05)

Normalized Gain

To determine the magnitude of the increase in the enhancement students' knowledge about active and passive voice construction in both comparative groups, the researcher performed an analysis of the results of the pretest and posttest. Analysis performed using normalized gain.

The formula for the gain normalized using the mean (average normalized gain) are considered to be effective according to Supranto (2009) as follows:

$$(g) = \frac{(posttest\ score) - (Pretest\ Score)}{(Maximum\ Score - Pretest\ Score)}$$

Where:

(g)   : mean normalized gain
(Pre-test Score) : percentage of the mean score of pre-test
(Pro-test Score) : percentage of the mean score of post-testt

The classification of Gain Score:

Table 15: Classification of Gain Score

Gain score	Interpretation
0.00-0.30	Low
0.31-0.70	Moderate
0.71-0.100	High

Normality Test

Normality test was done to see whether the data obtained from the population is normally distributed or not. To test the normality, Shapiro Wilk test was utilized. The formula according to Ruseffendi (1998) is as follows:

$$W = \frac{\sum_{i}^{n} = ai\, X\,(i))^2}{\sum_{i}^{n} = 1(X_i - \overline{X})^2}$$

Where:

W: Test statistic

$X_{(i)}$: Statistics order

a_i : The constant obtains from the average value

$\overline{X}$: The average of sample data

Based on the statistical test above the criteria for normality test is:

If $W_{count} \geq W_{table}$, it means H_0 is rejected

Where H_0: Data population is normally distributed

Criteria of Normality test for $\alpha = 0.05$, (if using SPSS)

Data is normal if p-value (sig) $> \alpha = 0.05$, then H_0 is not rejected, means that data population is normally distributed.

Data is normal if ρ-value (sig) $\leq \alpha = 0.05$, then H_0 has rejected means that data is not normally distributed.

Homogeneity Test

To determine the units between both comparative groups for testing whether they are homogeneous or not which means having the same basic qualities.

According ro Ruseffendy (1998), the formula for Homogeneity:

$$F = \frac{S^2\ the\ large\ variance}{S^2\ the\ small\ variance}$$

Where:

F   = F Value (Variance variable data)

S_1^2 = Variance of NHT group class.

S_2^2 = Variance of TGT group class

Criteria of homogeneity:

Data is homogeny if a Value (Sig) $\geq a = .0.05$, means H_0 is accepted.

Data is not homogeny if a Value (Sig) $\leq a = .0.05$, means H_0 is rejected.

Mean Differences Hypothesis Testing

If the two populations are normally distributed, then the statistics that the researcher used t-test with the formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_D \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \qquad \text{With: } S_D = \sqrt{\frac{(n_1-1)S_1{}^2 + (n_2-1)S_2{}^2}{n_1 + n_2 - 2}}$$

Where:

$\bar{x}_1$: Mean scores for the first group

$\bar{x}_2$: Mean scores for the second group

n_1: Number of the first group

n_2: Number of the second group

S_1: Standard deviation of the first group

S_2: Standard deviation of the second group

Criteria used if data analyzed using SPSS:

If the p-value is lesser than ($\leq$) 0.05, it means that there is a significant difference in students' knowledge enhancement about passive voice construction who were taught through Team Games Tournament and Numbered Heads Together.

If the p-value is larger than ($>$) 0.05, it means that there is no significant difference in students' knowledge enhancement about passive voice construction who were taught through Team Games Tournament and Numbered Heads Together.

If the data is not normally distributed and the population variance is not homogeneous, then the two different test average used is a non-parametric test, **Mann-Whitney** with formula according to Supranto (2009):

$$U = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - R_1$$

Criteria for U-test:

$$H_0 \text{ is rejected if } U_{count} < U_{table}$$

Criteria:

H_0 is rejected if the p-value is lesser than ($\leq$) 0.05, it means that there is a significant difference in students' knowledge enhancement about passive voice construction who were taught through Team Games Tournament and Numbered Heads Together.

H_0 is not rejected if the p-value is greater than ($>$) 0.05, it means that there is no significant difference in students' knowledge enhancement about passive voice construction who were taught through Team Games Tournament and Numbered Heads Together.

Research Results and Discussion

Descriptive Analysis

In analyzing the data, the researcher used Microsoft Excel and SPSS 16.0.

Pre-test

The result of the pre-test of each class can be seen in the following table:

Table 16 Pre-test and Standard Deviation

	NHT		TGT	
	Mean	St. Deviation	Mean	St. Deviation
Pre-Test	59.07	7.409	58.33	8.010
Minimun Score	43		36	
Maximum Score	70		70	
MSI	100			

Based on the result on table 16, it can be seen that the mean pre-test of Group 1 which is NHT is 59.07 with Std. Deviation 7.409 and for the minimum score is 43 and the maximum score is 70. For TGT, the mean of the pre-test is 58.33 with Std. Deviation 8.010 and the for the minimum score is 36 and the maximum score is 70. It can be concluded that the initial knowledge means for both classes are 58.33 and 59.07, then it becomes the answer to research question number one.

Post-test
The result of the post-test of each class can be seen in the following table:

Table 17 post-test and Standard Deviation

	NHT		TGT	
	Mean	St. Deviation	Mean	St. Deviation
Post-Test	80.27	9.566	72.27	9.055
Minimun Score	64		56	
Maximum Score	95		93	
MSI	100			

Based on the result of table 17, it can be seen the mean Post-test of NHT class is 80.27 with Std. Deviation 9.566 and for the minimum score is 64 and the maximum score is 95. For TGT, the mean of the post-test is 72.27 with Std. Deviation 9.055 and the for the minimum score is 56 and the maximum score is 93. It can be concluded that the initial score for both classes is quite high.

Gain Score
The result of the gain of each class can be seen in the following table:

Table 18

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Gain	1	30	.499766	.2440939	.0445652
	2	30	.339201	.1699369	.0310261

Based on the result on the table above, it can be concluded that mean gain of the NHT class is 0.499 and for the TGT class 0.339, it can be concluded that the knowledge of both classes has enhanced in constructing active and passive voice.

Test of Normality Gain
The researcher conducted a normality test for the result of the gain score. The result can be seen on the table below.

Table 19. the Normality Test Result for Normalized Gain

Tests of Normality

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Gain	1	.094	30	.200[*]	.952	30	.194
	2	.100	30	.200[*]	.966	30	.434

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Based on the table, it can be concluded that the population of the data is normally distributed for both classes, it is because the significant value of NHT is $0.194 > \alpha$ (0.05) and the significant value TGT is $0.434 > 0.05$.

Test of Homogeneity Variance for Gain Score
To see the homogeneity of population variances, homogeneity was done. The result can be seen in table 19.

Table 20. The Homogeneity Result for Normalized Gain Score

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Gain	Based on Mean	4.700	1	58	.034
	Based on Median	4.723	1	58	.034
	Based on Median and with adjusted df	4.723	1	55.408	.034
	Based on trimmed mean	4.717	1	58	.034

According to the data above, the significant value is 0.034 < 0.05, so it means that the population variances were not homogenous.

Independent Sample Test for Gain Score

Since the data is normally distributed, independent sample t-test is conducted and the result depicted on table 20

Table 21. The Independent Sample T-test Result for Gain Score

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Gain	Equal variances assumed	4.700	.034	2.957	58	.004	.1605850	.0543017	.0518683	.2692618
	Equal variances not assumed			2.957	51.764	.005	.1605850	.0543017	.0515888	.2695413

From the result, the significant (2-tailed) of equal variances not assumed the value is 0.005 < 0.05, so that means Ho is rejected, then it becomes the answer of the second statement of the problem that there is a significant difference between those who are taught using NHT and those who are taught using TGT.

Questionnaire

The additional data required for the present study were collected by administering a questionnaire to the subjects in order to know their response toward NHT and TGT. The results are explained in table 21:

Table 21 NHT Questionnaire

Subject	SA	A	D	SD	Total Score	(Total score/ 40) x100	Interpretation
1	8	3	17	0	28	57.5	Moderate
2	4	21	0	2	27	67.5	Good
3	0	0	16	2	18	45	Moderate
4	0	3	9	15	27	49.5	Moderate
5	0	12	10	1	23	57.5	Moderate

6	4	0	12	3	19	47.7	Moderate
7	0	24	6	0	30	75	Good
8	8	18	2	1	29	72.5	Good
9	0	18	4	2	24	60	Good
10	4	21	0	2	27	67.5	Good
11	8	3	11	0	22	55	Moderate
12	12	6	8	0	26	65	Good
13	4	21	2	0	27	67.5	Good
14	0	24	2	1	27	67.5	Good
15	20	9	6	2	33	82.5	Very Good
16	24	3	0	1	28	70	Good
17	0	21	2	2	25	62.5	Good
18	4	5	17	3	29	72.5	Good
19	0	16	0	2	18	45	Moderate
20	0	28	0	1	29	72.5	Good
21	4	21	2	1	28	70	Good
22	0	12	10	1	23	57.5	Moderate
23	8	18	2	1	29	72.5	Good
24	0	0	12	15	27	67.5	Good
25	6	18	2	0	26	65	Good
26	4	12	2	0	18	45	Moderate
27	7	16	4	0	27	67.5	Good
28	0	15	8	1	24	60	Good
29	12	18	0	1	31	77.5	Good
30	8	18	2	1	29	72.5	Good

Table 22. The Result of NHT Questionnaire

Percentage	Degree in Percentage	Interpretation
10.60	$80 \le t \le 100$	Very Good
30.32	$60 \le t \le 80$	Good
59.08	$40 \le t \le 60$	Moderate
0	$20 \le t \le 40$	Bad
0	$t \le 20$	Very Bad

From the table above, it is concluded that the mean percentage of students response in class NHT is calculated as the sum of the percentage of students' response divided by the number of the respondent, the result is 63.83, that can be categorized as "Good".

Table 23. TGT Questionnaire

Subject	Strongly Agree (A)	Agree (B)	Disagree (C)	Disagree (D)	Total Score	(Total score/ 40) x100	Interpretation
1	4	24	6	0	34	85	Very Good
2	0	16	0	2	18	45	Moderate
3	24	3	0	1	28	70	Good
4	0	21	2	2	25	62.5	Good
5	0	12	10	1	23	57.5	Moderate
6	4	21	0	1	26	65	Good
7	0	24	0	2	26	65	Good
8	4	21	2	1	28	70	Good
9	0	12	10	1	23	57.5	Moderate
10	0	28	0	1	29	72.5	Good
11	0	0	24	2	26	65	Good
12	8	18	0	0	26	65	Good
13	0	12	10	1	23	57.5	Moderate
14	12	12	0	2	26	65	Good
15	0	24	0	2	26	65	Good
16	4	21	2	1	28	70	Good
17	8	18	0	0	26	65	Good
18	8	18	2	1	29	72.5	Good
19	0	18	4	2	24	60	Good
20	20	6	9	2	33	82.5	Very Good
21	0	18	4	2	24	60	Good
22	4	0	12	3	19	47.7	Moderate
23	0	0	16	2	18	45	Moderate
24	4	3	12	2	21	52.5	Moderate
25	0	24	0	2	26	65	Good
26	0	16	0	2	18	45	Moderate
27	24	3	0	1	28	70	Good
28	8	18	2	1	29	72.5	Good
29	0	15	8	1	24	60	Good
30	12	12	0	2	26	65	Good

Table 24. The Result of TGT Questionnaire

Percentage	Degree in Percentage	Interpretation
22.03	$80 \le t \le 100$	Very Good
31.27	$60 \le t \le 80$	Good
46.7	$40 \le t \le 60$	Moderate
0	$20 \le t \le 40$	Bad
0	$t \le 20$	Very Bad

Based on the result of the TGT questionnaire, the mean percentage is 63.34 which mean the response of TGT group is "Good". From the data above, it can be said that most of the students from both classes agreed for the implementation of NHT and TGT strategy in enhancing their knowledge on voice construction. Seeing the responses from students' data analysis and the discussion is said there is a significant difference among the two strategies. They have students' responses at the same level, pre-test, post-test, were all at the same level. Students in both classes enjoyed the strategies.

Results and Discussion

The result of the data showed that the initial knowledge of students in the NHT group is 59.07 and in TGT group is 58.33. It is also known that there is a significant difference in students' reading comprehension between those who are taught using TGT and those who are taught using NHT. From the result of normalized gain, it can be seen that the students who are taught using NHT got 0.4997 and those who are taught using TGT got 0.3392. So, it can be said that both treatments are applicable in teaching voice construction and it showed that both strategies enhanced the students' knowledge on voice construction.

The response of both classes also showed that they are enjoyed in learning English, proved by the results of the questionnaire from both classes are 63.83 and 63.34 which categorized as "Good".

Conclusion & Recommendation

After interpreting the data, the researcher concluded that there is a significant difference between students who are taught using NHT and students who are taught using TGT strategy.

In relation to the conclusion above, the researcher gives several recommendations:

English Teachers. It is recommended for English teachers to use both methods to teach active and passive voice construction because it has been proven by the researcher that the results also showed that students' knowledge on constructing active and passive voice has been enhanced.

English learners. Learning by groups is highly recommended since it can enhance students' knowledge in constructing active and passive voice.

Future Researcher. The researcher hopes that the results of this study can be used as additional references for future researchers at various levels and context

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