# Teaching Management: Teaching of Passive Voice Through Short Reading Passage Towards Students of Economic College 

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#### Abstract

Reading has become something essential in our life to know what happens around the world. Meanwhile, grammar is contained in reading. Passive voice as a part of grammar students need to learn especially in academic writing, has become a problem for them. Therefore, the use of a short reading passage will help the students to get more understanding a passive voice. The research is conducted towards students of an economic college in a pre-experimental study. The average of the pre-test score is 5.55 and the average of the post-test score is 6.66 . The students' average score of pre-test and posttest is 1.11 which means there is an improvement of the score after the treatment. The treatment is 0.73 which means moderate. Thus, the use of short reading passage can be applied in teaching grammar, such as passive voice toward college students.


Keywords: reading, short reading passage, grammar, passive voice, pre-experimental study, teaching, college

## 1. Introduction

Reading may make us know or learn something new that we have never learned before. According to Holden (2004: 5) reading is an important gateway to personal development, and to social, economic and civic life. Therefore, mastering reading with all its elements will be a great advantage. One of the elements in reading which we cannot avoid is grammar. Simmons (2006: 48) discovers something surprising that '... grammar and reading comprehension are closely related.' Thus, we may conclude that inside some readings, they contain some sentences that are constructed in certain ways and grammars are included in those sentences.

Siyabi (2017: 164) stated in her journal that '... short stories into language may improve students' language skills more efficiently.' Moreover, Siyabi also found out some more benefits by using short stories could increase writing skills. It can be concluded that writing skills are strongly related to grammar. Although it is difficult for the students to understand the grammar in reading text. However, as what previously stated, short stories (or at least amusing stories) will make students get interested with the subject/ material taught.

The students tend to gain more understanding if they read something which is called 'short reading', such as: short story, comic, novel, etc. According to Fry, in his book Study smarter not harder (2005: 63); we, especially students, prefer to read entertaining books.

Meanwhile, grammar has become a part of the English's ability that requires our total attention, it also has become one of the hardest parts. Students, especially in Indonesia, often find it difficult in mastering English grammar. Some of the students may have great ability in speaking, pronunciation, or listening but fail or lack in grammar.

A tendency to be 'afraid' of the English grammar. One of the problems in English grammar is passive voice. As what the college students have to face in writing (any
academic writing), passive voice would be very helpful. Norris (2012: 4) suggested us to use passive voice. Yet, Anderson and Lynch (2013: 21) stated that '...for the frequency of the Passive in academic English is that it creates the impression that the events or ideas are being described objectively;...'

Passive voice has created difficulties for almost half of the students. This is a generalization made by the students, and students of 'STIE Widya Dharma' (Widya Dharma Economic College), the place where the research was held, face the same problem. The subject and object matters confuse the students in deciding which pattern they have to follow in order to make the sentences correct.

This research investigates the effectiveness of short reading passage in teaching passive voice, the way to make the students become easier to understand the English grammar.

## 2. Research Method

The method of research is an experimental study. The purpose of the research is to find out whether or not the use of short reading passage can improve the students' acquisition of passive voice, the researcher uses pre-experimental study with one group pretest-posttest design. According to Hatch and Farady (1982: 20), one group pre-test - post-test no control group and the students' score are given based on some experimental instructions or treatment for a given period of time and pretest is given before treatment.

Since it is an experimental study with one group pretest-posttest design, the design can be seen as follows:

$$
\mathbf{X}_{1}-\mathbf{T}-\mathbf{X}_{2}
$$

Where
$\mathrm{X}_{1}=$ Pre-test
$\mathrm{X}_{2}=$ Post-test
$\mathrm{T}=$ Treatment
Pre-test is given before the treatment to measure the students' achievement in passive voice. The treatment is applied two times by using short reading passages. Post-test is given after the treatment to measure the students' achievement in passive voice. And the researcher uses $t$-test to determine the interval score whether the score is significant or not.

The population of research is the first semester students of STIE who enroll Business English in 2018/2019. There are several classes that enroll in this subject. However, due to the limited time, one class (class P) which consists of 56 students was taken to be the representative. During the research, 3 students were absent during the research, thus 53 students were taken as the population. The sample of the research is the first semester students of STIE who enroll Business English in 2018/2019 batch.

As a pre-experimental study is chosen, pre-test and post-test are required. Pretest which consists of 30 multiple choice items concerning passive voice. In this type of questions, the students have to choose the correct answer of those questions. The students' correct answers are awarded one mark, while for those who are wrong is awarded zero mark. Pre-test was aimed to find out the condition of the students' comprehension in Passive Voice before the treatment. Students were given 60 minutes to do the test. As well as the post-test which is similar to pre-test. Post-test was aimed to find out the condition of the students after treatment had been given.

Between pre-test and post-test, there was a treatment done. The treatment was in form of short reading passage, one was in present tense and another one was in past tense. The passages contained some passives sentences and the students are asked to read and identify the sentences.

Before having the pre-test, a trial-test was done. The trial test was intended to find out the test was valid and reliable or not. The test then was analyzed and computed to find out the Discriminating Power (DP) and the Difficulty Level (DL). The test result was analyzed to find out the mean of the pre-test and post-test.

The questions' references are taken from English Grammar in Use as a reference in making the test items. Later, the students are asked to answer in the test sheet.

In addition, two different stories from Comprehension and Cloze, Lee (2003: 23) are enclosed. These stories are used as one of the equipment in teaching, and it is hoped that the students can identify the patterns seeing the grammar used in stories given.

The measurement of mean score of pre-test and post-test uses the formula as stated below:

$$
\text { Score }=\frac{\sum_{s}}{\sum_{i}} \times \text { Max Score }
$$

Where

```
Score = Student's Individual Score
\Sigmas = Total Correct Answers (maximum 30)
\Sigmai = The Amount of The Test items (30)
Max Score = The Highest Score (100)
```

The criteria of students' score can be seen as follows (Harris, 1969: 134):
TABLE 1
CRITERIA OF STUDENTS' SCORE

| Score | Classification |
| :---: | :--- |
| $80-100$ | Good to Excellent |
| $60-79$ | Average to Good |
| $50-59$ | Poor to Average |
| $0-49$ | Poor |

The calculation of average score of pre-test and post-test uses the formula as stated below:

$$
\overline{\mathrm{X}}=\frac{\sum \mathrm{X}}{\mathrm{~N}}
$$

Where:
$\overline{\mathrm{X}}=$ The mean score of students
$\sum \mathrm{X}=$ The sum of individual scores
$\mathrm{N}=$ The total number of the students

The calculation of student's interval score of pre-test and post-test uses the formula as stated below:

$$
\mathrm{D}=\overline{\mathrm{X}}_{2}-\overline{\mathrm{X}}_{1}
$$

Where:
D = The interval between pre-test and post-test
$\bar{X}_{2}=$ The mean score of post-test
$\overline{\mathrm{X}}_{1}=$ The mean score of pre-test

The calculation of student's significance score of pre-test and post-test, t-test is used and the formula as stated below:

$$
t=\frac{\overline{\mathbf{D}}}{\sqrt{\frac{\sum \mathbf{D}^{2}-\frac{\left(\sum \mathbf{D}\right)^{2}}{\mathbf{N}}}{\mathbf{N}(\mathbf{N}-\mathbf{1})}}}
$$

Where:
$\mathrm{t}=\mathrm{t}$-value for correlated means
$\sum \mathrm{D}=$ the difference between the paired scores
$\overline{\mathrm{D}}=$ the mean of the difference (between posttest and pretest score)
$\mathrm{D}^{2}=$ the sum of square difference score
$\mathrm{N}=$ the number of the pair
The measurement of effect of the treatment uses and the formula as stated below:

$$
\mathrm{ES}=\frac{\overline{\bar{X}_{\mathrm{e}}}-\overline{\mathrm{X}_{\mathrm{c}}}}{\mathrm{Sp}}
$$

Where:
ES = Effect size
$\overline{X_{e}}=$ Mean of post-test
$\overline{\mathrm{X}_{\mathrm{c}}}=$ Mean of pre-test
$\mathrm{Sp}=$ Standard deviation

$$
S p=\sqrt{\frac{\left(N_{e}-1\right) S_{e}^{2}+\left(N_{c}-1\right) S_{c}^{2}}{N_{e}+N_{c}-2}}
$$

Where:
$\mathrm{N}_{\mathrm{e}}=$ Total of the students who take posttest
$S_{e}=$ Standard deviation of posttest score
$\mathrm{N}_{\mathrm{c}}=$ Total of the students who take pretest
$\mathrm{S}_{\mathrm{c}}=$ Standard deviation of pretest score

$$
\mathrm{Se}=\sqrt{\frac{\sum\left(\mathrm{X}_{2}-\overline{\mathrm{X}_{2}}\right)^{2}}{\mathrm{~N}}} \quad \mathrm{Sc}=\sqrt{\frac{\sum\left(\mathrm{X}_{1}-\overline{\mathrm{X}_{1}}\right)^{2}}{\mathrm{~N}}}
$$

Where:
$\sum\left(\mathrm{X}_{2}-\overline{\mathrm{X}_{2}}\right)^{2} \quad=$ The sum of score minus mean score of posttest
$\sum\left(X_{1}-\overline{X_{1}}\right)^{2} \quad=$ The sum of score minus mean score of pretest
$\mathrm{N} \quad=$ Total number of the students
And the criteria in determining the effect of treatment can be seen in the following table:

TABLE 2
CRITERIA OF TREATMENT'S EFFECT

| Effect Size | Qualifications |
| :--- | :--- |
| ES $\leq 0.2$ | Low |
| $0.2<$ ES $<0.8$ | Moderate |
| ES $>0.8$ | High |

## 3. Findings and Discussion

## a. Findings

After analyzing the data, the score of the students' score ranges from the highest score (8.67) to the lowest score (2.33). The total of the students' pre-test score is 294 . The mean score of the pre-test or the students' achievement is 5.55 . It means that the students' achievement in pre-test is poor to average. (see Appendix 1)

$$
\overline{X_{1}}=\frac{\sum X_{1}}{N}=\frac{294}{53}=\mathbf{5 . 5 5}
$$

The score of the students' score ranges from the highest score (9.67) to the lowest score (4.00). The total of the students' post-test score is 353 . The mean score of the post-test or the students' achievement is 6.66. It means that the students' achievement in posttest is average to good. (see Appendix 2)

$$
\overline{\mathrm{X}_{2}}=\frac{\sum \mathrm{X}_{2}}{\mathrm{~N}}=\frac{353}{53}=6.66
$$

The interval is obtained by subtraction between pretest score and posttest score.

$$
\begin{aligned}
& \mathbf{D}=\overline{\mathbf{X}}_{2}-\overline{\mathbf{X}}_{1}=6.66-5.55=\mathbf{1 . 1 1} \\
& \mathbf{t}=\frac{\overline{\mathbf{D}}}{\sqrt{\frac{\sum \mathbf{D}^{2}-\frac{\left(\sum \mathbf{D}\right)^{2}}{\mathbf{N}}}{\mathbf{N}(\mathbf{N}-\mathbf{1})}}}
\end{aligned}
$$

To count t-test, (mean from the sum of result between post-test and pretest) is required. (see Appendix 3)

$$
\overline{\mathrm{D}}=\frac{\sum \mathrm{D}}{\mathbf{N}}==\frac{59.00}{53}=\mathbf{1 . 1 1}
$$

After getting the result of , then put into $t$-test formula:

$$
\begin{aligned}
& t=\frac{1.11}{\sqrt{\frac{105.22-\frac{(59)^{2}}{53}}{53(53-1)}}}=\frac{1.11}{\sqrt{\frac{105.22-\frac{3481}{53}}{53(52)}}}=\frac{1.11}{\sqrt{\frac{105.22-65.68}{2,756}}} \\
& t=\frac{1.11}{\sqrt{\frac{39.54}{2,756}}}=\frac{1.11}{\sqrt{0.01}}=\frac{1.11}{0.1}=\mathbf{1 1 . 0 1}
\end{aligned}
$$

From the result of $\mathbf{t}$, the researcher uses the t -table (Hadi: 1986, p.517-518) significance $5 \%$ with df (degree of freedom) $=\mathrm{N}-1$ (53-1) to see the significance of the teaching through short reading passage. And from the result: $\mathbf{1 1 . 0 1}$ is higher than 2.021, which means that the teaching through this method the students' comprehension in passive voice is increasing.

$$
\mathrm{ES}=\frac{\overline{\mathrm{X}_{\mathrm{e}}}-\overline{\mathrm{X}_{\mathrm{c}}}}{\mathrm{Sp}}
$$

To find ES (Effect Size), the researcher needed to find Sp first, and the formula to find Sp is as follows:

$$
S p=\sqrt{\frac{\left(N_{e}-1\right) S_{e}^{2}+\left(N_{c}-1\right) S_{c}^{2}}{N_{e}+N_{c}-2}}
$$

But, before finding Sp , there are some computations that the researcher should count; $\mathrm{S}_{\mathrm{e}}$ and $\mathrm{S}_{\mathrm{c} .}$ And the formulas of those are: (see Appendix 4)

$$
\begin{array}{ll}
\mathbf{S e}=\sqrt{\frac{\sum\left(\mathbf{X}_{\mathbf{2}}-\overline{\mathbf{X}_{\mathbf{2}}}\right)^{2}}{\mathbf{N}}} & \mathbf{S c}=\sqrt{\frac{\sum\left(\mathbf{X}_{1}-\overline{\mathbf{X}_{1}}\right)^{2}}{\mathbf{N}}} \\
\mathrm{Se}=\sqrt{\frac{116.33}{53}} & \mathrm{Sc}=\sqrt{\frac{131.13}{53}} \\
\mathrm{Se}=\sqrt{2.19} & \mathrm{Sc}=\sqrt{2.47} \\
\mathrm{Se}=\mathbf{1} .48 & \mathrm{Sc}=\mathbf{1} .57
\end{array}
$$

After knowing the result of $S_{e}$ and $S_{c}$, then put them into this formula to find Sp :

$$
\begin{aligned}
& \mathrm{Sp}=\sqrt{\frac{(53-1) 2.19+(53-1) 2.47}{52+53-2}}=\sqrt{\frac{(52) 2.19+(52) 2.47}{103}} \\
& \mathrm{Sp}=\sqrt{\frac{113.88+128.44}{103}}=\sqrt{\frac{242.32}{103}}=\sqrt{2.35}=\mathbf{1 . 5 3}
\end{aligned}
$$

Last step, after getting the result of Sp , then put into this formula to find ES :

$$
\mathrm{ES}=\frac{6.66-5.55}{1.53}=\frac{1.11}{1.53}=\mathbf{0 . 7 3}
$$

From the result of the effect of treatment, 0.73 is obtained. And based on the criteria of effect of treatment, 0.73 is between 0.2 and 0.8 which means that the treatment applied is moderate. In other words, the technique used by the researcher is effective in improving the students' ability in passive voice.

## b. Discussion

Pre-experimental study with one group pre-test - post-test design was applied in this research. By seeing the students' score in pre-test, the lowest score of pre-test is 2.30 and the highest score is 8.80 with the total of pre-test score is 294 and mean score is 5.55 While students' score in post-test is 4.00 and the highest score is 9.67 with the total post-test score is 353 and mean score is 6.66 . The conclusion of the result of pre-test and post-test can be seen as follows:

TABLE 3
RESULT OF PRE-TEST \& POST-TEST

| Criteria | Pre-Test | Post-Test |
| :--- | :---: | :---: |
| Lowest Score | 2.33 | 4.00 |
| Highest Score | 8.67 | 9.67 |
| Total Score | 294 | 353 |
| Mean Score | 5.55 | 6.66 |
| Percentage of students who are in 'poor' classification | $24.53 \%$ | $9.43 \%$ |
| Percentage of students who are in 'poor to average' <br> classification | $35.85 \%$ | $37.74 \%$ |
| Percentage of students who are in 'average to good' <br> classification | $26.41 \%$ | $30.19 \%$ |
| Percentage of students who are in 'good to excellent' <br> classification | $13.21 \%$ | $22.64 \%$ |

From the result of pre-test score and post-test score, it can be concluded that there is an increase in the students' achievement in passive voice. The table of pretest and post-test show that there is an increasing of percentage in students' classification.

After conducting pre-test, the researcher gave a treatment to the research sample by using short reading passages. The treatment was given two times with different materials (present short reading passage) and (past short reading passage) which passive matter was included in the passages. The treatment proceeded as follows: first, read the passages. In this step, the students were supposed to read the passage. The students enjoyed the reading since the passage was designed in simple way; not too long, and interesting.

Second, the students were asked to find the sentences written in passive voice. The students were helped to find out the sentences in the beginning, and then they found the rest of the passive sentences.

Third, the students were asked to find out the formula of the sentences. Some students were asked to come to the front and wrote down the sentence they had found. Then, the students tried to find/ draw the formula based on the sentences written. Finally, after the treatment had been given, the post-test was given.

The ES (effect size) is to measure the effect of treatment which is given during the research. Here, the treatment was using short reading passages in teaching passive voice. The result is 0.73 which based on the table of ES, it means moderate.

By seeing those results, the researcher concludes that the use of short reading passage can improve the first semester of Widya Dharma Economic College in 2018/ 2019 achievement in passive voice.

This research has shown the use of short reading passage is effective in improving students' achievement in understanding passive voice better.

## 4. Conclusion and Suggestion

## a. Conclusions

After conducting the research, some conclusions have been drawn out as the following:

1) The use of short reading passage is effective in improving the first semester of Widya Dharma Economic College in 2018 / 2019 achievement in passive voice. It can be seen from the interval score of the pretest and posttest is 1.11. It means some students do have improvement in their scores
2) The use of the treatment is considered moderate based on the table of Effect Size. The result is 0.73 which means that it is between 0.2 and 0.8 . Therefore, it is said that the treatment is moderate effectiveness.

## b. Suggestions

The use of short reading passage is useful in teaching not only for reading but also in teaching grammar. However, type of reading should be considered to make the reading becomes more fun. A good topic can help and lead the students to learn something new, from unknown becomes known.

Since the students in college are expected to be more active than the teachers, it is hoped that the teacher can facilitate the students in learning grammar through active learning. The students have to be more active in finding or forming the formula of certain grammar by seeing examples or sentences given by the teacher.

Although the nowadays system which makes the students become more active than the teacher, still, the teacher needs to help whether the students need the teacher's help or not. The teacher becomes the motivator and facilitator for the students in learning.

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Pre-Test Students' Achievement Score

| No. of Students |  | Raw Score | Score (X1) | Classification |
| :---: | :---: | :---: | :---: | :---: |
| 1 | A | 9 | 3.00 | Poor |
| 2 | B | 7 | 2.33 | Poor |
| 3 | C | 18 | 6.00 | Average to good |
| 4 | D | 24 | 8.00 | Good to excellent |
| 5 | E | 15 | 5.00 | Poor to average |
| 6 | F | 17 | 5.67 | Average to good |
| 7 | G | 18 | 6.00 | Average to good |
| 8 | H | 19 | 6.33 | Average to good |
| 9 | I | 20 | 6.67 | Average to good |
| 10 | J | 25 | 8.33 | Good to excellent |
| 11 | K | 20 | 6.67 | Average to good |
| 12 | L | 12 | 4.00 | Poor |
| 13 | M | 12 | 4.00 | Poor |
| 14 | N | 22 | 7.33 | Average to good |
| 15 | 0 | 14 | 4.67 | Poor |
| 16 | P | 12 | 4.00 | Poor |
| 17 | Q | 25 | 8.33 | Good to excellent |
| 18 | R | 15 | 5.00 | Poor to average |
| 19 | S | 11 | 3.67 | Poor |
| 20 | T | 7 | 2.33 | Poor |
| 21 | U | 21 | 7.00 | Average to good |
| 22 | V | 24 | 8.00 | Good to excellent |
| 23 | W | 16 | 5.33 | Poor to average |
| 24 | Y | 9 | 3.00 | Poor |
| 25 | Z | 15 | 5.00 | Poor to average |
| 26 | AA | 16 | 5.33 | Poor to average |
| 27 | AB | 26 | 8.67 | Good to excellent |
| 28 | AC | 15 | 5.00 | Poor to average |
| 29 | AE | 16 | 5.33 | Poor to average |
| 30 | AF | 15 | 5.00 | Poor to average |
| 31 | AG | 19 | 6.33 | Average to good |
| 32 | AH | 17 | 5.67 | Poor to average |
| 33 | AI | 15 | 5.00 | Poor to average |
| 34 | AJ | 16 | 5.33 | Poor to average |
| 35 | AK | 17 | 5.67 | Poor to average |
| 36 | AL | 17 | 5.67 | Poor to average |
| 37 | AM | 15 | 5.00 | Poor to average |
| 38 | AN | 19 | 6.33 | Average to good |
| 39 | AO | 23 | 7.67 | Average to good |
| 40 | AP | 24 | 8.00 | Good to excellent |
| 41 | AQ | 16 | 5.33 | Poor to average |
| 42 | AR | 10 | 3.33 | Poor |
| 43 | AS | 17 | 5.67 | Poor to average |
| 44 | AT | 25 | 8.33 | Good to excellent |
| 45 | AU | 16 | 5.33 | Poor to average |
| 46 | AV | 11 | 3.67 | Poor |
| 47 | AW | 11 | 3.67 | Poor |
| 48 | AX | 17 | 5.67 | Poor to average |
| 49 | AY | 12 | 4.00 | Poor |
| 50 | AZ | 13 | 4.33 | Poor |
| 51 | BA | 19 | 6.33 | Average to good |
| 52 | BC | 18 | 6.00 | Average to good |
| 53 | BD | 20 | 6.67 | Average to good |
| $\Sigma$ |  |  | 294.00 |  |


| No. of Students |  | Raw Score | Score (X1) | Classification |
| :---: | :---: | :---: | :---: | :---: |
| 1 | A | 14 | 4.67 | Poor |
| 2 | B | 15 | 5.00 | Poor to average |
| 3 | C | 23 | 7.67 | Average to good |
| 4 | D | 29 | 9.67 | Good to excellent |
| 5 | E | 23 | 7.67 | Average to good |
| 6 | F | 23 | 7.67 | Average to good |
| 7 | G | 24 | 8.00 | Good to excellent |
| 8 | H | 28 | 9.33 | Good to excellent |
| 9 | I | 27 | 9.00 | Good to excellent |
| 10 | J | 25 | 8.33 | Good to excellent |
| 11 | K | 22 | 7.33 | Average to good |
| 12 | L | 15 | 5.00 | Poor to average |
| 13 | M | 16 | 5.33 | Poor to average |
| 14 | N | 23 | 7.67 | Average to good |
| 15 | 0 | 17 | 5.67 | Poor to average |
| 16 | P | 14 | 4.67 | Poor |
| 17 | Q | 26 | 8.67 | Good to excellent |
| 18 | R | 21 | 7.00 | Average to good |
| 19 | S | 14 | 4.67 | Poor |
| 20 | T | 12 | 4.00 | Poor |
| 21 | U | 22 | 7.33 | Average to good |
| 22 | V | 26 | 8.67 | Good to excellent |
| 23 | W | 17 | 5.67 | Poor to average |
| 24 | Y | 12 | 4.00 | Poor |
| 25 | Z | 17 | 5.67 | Poor to average |
| 26 | AA | 16 | 5.33 | Poor to average |
| 27 | AB | 28 | 9.33 | Good to excellent |
| 28 | AC | 17 | 5.67 | Poor to average |
| 29 | AE | 16 | 5.33 | Poor to average |
| 30 | AF | 17 | 5.67 | Poor to average |
| 31 | AG | 21 | 7.00 | Average to good |
| 32 | AH | 18 | 6.00 | Average to good |
| 33 | AI | 17 | 5.67 | Poor to average |
| 34 | AJ | 20 | 6.67 | Poor to average |
| 35 | AK | 21 | 7.00 | Average to good |
| 36 | AL | 17 | 5.67 | Poor to average |
| 37 | AM | 15 | 5.00 | Poor to average |
| 38 | AN | 22 | 7.33 | Average to good |
| 39 | AO | 23 | 7.67 | Average to good |
| 40 | AP | 26 | 8.67 | Good to excellent |
| 41 | AQ | 17 | 5.67 | Poor to average |
| 42 | AR | 16 | 5.33 | Poor to average |
| 43 | AS | 17 | 5.67 | Poor to average |
| 44 | AT | 26 | 8.67 | Good to excellent |
| 45 | AU | 23 | 7.67 | Average to good |
| 46 | AV | 16 | 5.33 | Poor to average |
| 47 | AW | 20 | 6.67 | Average to good |
| 48 | AX | 17 | 5.67 | Poor to average |
| 49 | AY | 20 | 6.67 | Average to good |
| 50 | AZ | 17 | 5.67 | Poor to average |
| 51 | BA | 24 | 8.00 | Good to excellent |
| 52 | BC | 24 | 8.00 | Good to excellent |
| 53 | BD | 23 | 7.67 | Average to good |
|  | $\Sigma$ |  | 353.00 |  |

The Computation of Pre-test and Post-test Significance
Appendix 3

| No | $\begin{gathered} \text { Pretest } \\ \left(\mathrm{X}_{1}\right) \\ \hline \end{gathered}$ | $\begin{gathered} \text { Posttest } \\ \left(\mathrm{X}_{2}\right) \\ \hline \end{gathered}$ | D ( $\mathrm{X}_{\mathbf{2}}-\mathrm{X}_{1}$ ) | $\mathrm{d}^{2}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 3.00 | 4.67 | 1.67 | 2.78 |
| 2 | 2.33 | 5.00 | 2.67 | 7.11 |
| 3 | 6.00 | 7.67 | 1.67 | 2.78 |
| 4 | 8.00 | 9.67 | 1.67 | 2.78 |
| 5 | 5.00 | 7.67 | 2.67 | 7.11 |
| 6 | 5.67 | 7.67 | 2.00 | 4.00 |
| 7 | 6.00 | 8.00 | 2.00 | 4.00 |
| 8 | 6.33 | 9.33 | 3.00 | 9.00 |
| 9 | 6.67 | 9.00 | 2.33 | 5.44 |
| 10 | 8.33 | 8.33 | 0.00 | 0.00 |
| 11 | 6.67 | 7.33 | 0.67 | 0.44 |
| 12 | 4.00 | 5.00 | 1.00 | 1.00 |
| 13 | 4.00 | 5.33 | 1.33 | 1.78 |
| 14 | 7.33 | 7.67 | 0.33 | 0.11 |
| 15 | 4.67 | 5.67 | 1.00 | 1.00 |
| 16 | 4.00 | 4.67 | 0.67 | 0.44 |
| 17 | 8.33 | 8.67 | 0.33 | 0.11 |
| 18 | 5.00 | 7.00 | 2.00 | 4.00 |
| 19 | 3.67 | 4.67 | 1.00 | 1.00 |
| 20 | 2.33 | 4.00 | 1.67 | 2.78 |
| 21 | 7.00 | 7.33 | 0.33 | 0.11 |
| 22 | 8.00 | 8.67 | 0.67 | 0.44 |
| 23 | 5.33 | 5.67 | 0.33 | 0.11 |
| 24 | 3.00 | 4.00 | 1.00 | 1.00 |
| 25 | 5.00 | 5.67 | 0.67 | 0.44 |
| 26 | 5.33 | 5.33 | 0.00 | 0.00 |
| 27 | 8.67 | 9.33 | 0.67 | 0.44 |
| 28 | 5.00 | 5.67 | 0.67 | 0.44 |
| 29 | 5.33 | 5.33 | 0.00 | 0.00 |
| 30 | 5.00 | 5.67 | 0.67 | 0.44 |
| 31 | 6.33 | 7.00 | 0.67 | 0.44 |
| 32 | 5.67 | 6.00 | 0.33 | 0.11 |
| 33 | 5.00 | 5.67 | 0.67 | 0.44 |
| 34 | 5.33 | 6.67 | 1.33 | 1.78 |
| 35 | 5.67 | 7.00 | 1.33 | 1.78 |
| 36 | 5.67 | 5.67 | 0.00 | 0.00 |
| 37 | 5.00 | 5.00 | 0.00 | 0.00 |
| 38 | 6.33 | 7.33 | 1.00 | 1.00 |
| 39 | 7.67 | 7.67 | 0.00 | 0.00 |
| 40 | 8.00 | 8.67 | 0.67 | 0.44 |
| 41 | 5.33 | 5.67 | 0.33 | 0.11 |
| 42 | 3.33 | 5.33 | 2.00 | 4.00 |
| 43 | 5.67 | 5.67 | 0.00 | 0.00 |
| 44 | 8.33 | 8.67 | 0.33 | 0.11 |
| 45 | 5.33 | 7.67 | 2.33 | 5.44 |
| 46 | 3.67 | 5.33 | 1.67 | 2.78 |
| 47 | 3.67 | 6.67 | 3.00 | 9.00 |
| 48 | 5.67 | 5.67 | 0.00 | 0.00 |
| 49 | 4.00 | 6.67 | 2.67 | 7.11 |
| 50 | 4.33 | 5.67 | 1.33 | 1.78 |
| 51 | 6.33 | 8.00 | 1.67 | 2.78 |
| 52 | 6.00 | 8.00 | 2.00 | 4.00 |
| 53 | 6.67 | 7.67 | 1.00 | 1.00 |
| $\sum$ | 294.00 | 353.00 | 59.00 | 105.22 |


| No. | $\mathrm{X}_{1}$ |  | ( $\mathrm{X}_{1}-\quad$ ) | $\mathrm{X}_{2}$ |  | ( $\mathrm{X}_{2}{ }^{-}$) | $\left(\mathrm{X}_{1}-\quad\right)^{2}$ | $\left(\mathrm{X}_{2}-\right)^{\mathbf{2}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 3.00 | 5.55 | -2.55 | 4.67 | 6.66 | -1.99 | 6.49 | 3.97 |
| 2 | 2.33 | 5.55 | -3.21 | 5.00 | 6.66 | -1.66 | 10.33 | 2.76 |
| 3 | 6.00 | 5.55 | 0.45 | 7.67 | 6.66 | 1.01 | 0.21 | 1.01 |
| 4 | 8.00 | 5.55 | 2.45 | 9.67 | 6.66 | 3.01 | 6.02 | 9.04 |
| 5 | 5.00 | 5.55 | -0.55 | 7.67 | 6.66 | 1.01 | 0.30 | 1.01 |
| 6 | 5.67 | 5.55 | 0.12 | 7.67 | 6.66 | 1.01 | 0.01 | 1.01 |
| 7 | 6.00 | 5.55 | 0.45 | 8.00 | 6.66 | 1.34 | 0.21 | 1.79 |
| 8 | 6.33 | 5.55 | 0.79 | 9.33 | 6.66 | 2.67 | 0.62 | 7.14 |
| 9 | 6.67 | 5.55 | 1.12 | 9.00 | 6.66 | 2.34 | 1.25 | 5.47 |
| 10 | 8.33 | 5.55 | 2.79 | 8.33 | 6.66 | 1.67 | 7.76 | 2.80 |
| 11 | 6.67 | 5.55 | 1.12 | 7.33 | 6.66 | 0.67 | 1.25 | 0.45 |
| 12 | 4.00 | 5.55 | -1.55 | 5.00 | 6.66 | -1.66 | 2.39 | 2.76 |
| 13 | 4.00 | 5.55 | -1.55 | 5.33 | 6.66 | -1.33 | 2.39 | 1.76 |
| 14 | 7.33 | 5.55 | 1.79 | 7.67 | 6.66 | 1.01 | 3.19 | 1.01 |
| 15 | 4.67 | 5.55 | -0.88 | 5.67 | 6.66 | -0.99 | 0.78 | 0.99 |
| 16 | 4.00 | 5.55 | -1.55 | 4.67 | 6.66 | -1.99 | 2.39 | 3.97 |
| 17 | 8.33 | 5.55 | 2.79 | 8.67 | 6.66 | 2.01 | 7.76 | 4.03 |
| 18 | 5.00 | 5.55 | -0.55 | 7.00 | 6.66 | 0.34 | 0.30 | 0.12 |
| 19 | 3.67 | 5.55 | -1.88 | 4.67 | 6.66 | -1.99 | 3.54 | 3.97 |
| 20 | 2.33 | 5.55 | -3.21 | 4.00 | 6.66 | -2.66 | 10.33 | 7.08 |
| 21 | 7.00 | 5.55 | 1.45 | 7.33 | 6.66 | 0.67 | 2.11 | 0.45 |
| 22 | 8.00 | 5.55 | 2.45 | 8.67 | 6.66 | 2.01 | 6.02 | 4.03 |
| 23 | 5.33 | 5.55 | -0.21 | 5.67 | 6.66 | -0.99 | 0.05 | 0.99 |
| 24 | 3.00 | 5.55 | -2.55 | 4.00 | 6.66 | -2.66 | 6.49 | 7.08 |
| 25 | 5.00 | 5.55 | -0.55 | 5.67 | 6.66 | -0.99 | 0.30 | 0.99 |
| 26 | 5.33 | 5.55 | -0.21 | 5.33 | 6.66 | -1.33 | 0.05 | 1.76 |
| 27 | 8.67 | 5.55 | 3.12 | 9.33 | 6.66 | 2.67 | 9.73 | 7.14 |
| 28 | 5.00 | 5.55 | -0.55 | 5.67 | 6.66 | -0.99 | 0.30 | 0.99 |
| 29 | 5.33 | 5.55 | -0.21 | 5.33 | 6.66 | -1.33 | 0.05 | 1.76 |
| 30 | 5.00 | 5.55 | -0.55 | 5.67 | 6.66 | -0.99 | 0.30 | 0.99 |
| 31 | 6.33 | 5.55 | 0.79 | 7.00 | 6.66 | 0.34 | 0.62 | 0.12 |
| 32 | 5.67 | 5.55 | 0.12 | 6.00 | 6.66 | -0.66 | 0.01 | 0.44 |
| 33 | 5.00 | 5.55 | -0.55 | 5.67 | 6.66 | -0.99 | 0.30 | 0.99 |
| 34 | 5.33 | 5.55 | -0.21 | 6.67 | 6.66 | 0.01 | 0.05 | 0.00 |
| 35 | 5.67 | 5.55 | 0.12 | 7.00 | 6.66 | 0.34 | 0.01 | 0.12 |
| 36 | 5.67 | 5.55 | 0.12 | 5.67 | 6.66 | -0.99 | 0.01 | 0.99 |
| 37 | 5.00 | 5.55 | -0.55 | 5.00 | 6.66 | -1.66 | 0.30 | 2.76 |
| 38 | 6.33 | 5.55 | 0.79 | 7.33 | 6.66 | 0.67 | 0.62 | 0.45 |
| 39 | 7.67 | 5.55 | 2.12 | 7.67 | 6.66 | 1.01 | 4.49 | 1.01 |
| 40 | 8.00 | 5.55 | 2.45 | 8.67 | 6.66 | 2.01 | 6.02 | 4.03 |
| 41 | 5.33 | 5.55 | -0.21 | 5.67 | 6.66 | -0.99 | 0.05 | 0.99 |
| 42 | 3.33 | 5.55 | -2.21 | 5.33 | 6.66 | -1.33 | 4.90 | 1.76 |
| 43 | 5.67 | 5.55 | 0.12 | 5.67 | 6.66 | -0.99 | 0.01 | 0.99 |
| 44 | 8.33 | 5.55 | 2.79 | 8.67 | 6.66 | 2.01 | 7.76 | 4.03 |
| 45 | 5.33 | 5.55 | -0.21 | 7.67 | 6.66 | 1.01 | 0.05 | 1.01 |
| 46 | 3.67 | 5.55 | -1.88 | 5.33 | 6.66 | -1.33 | 3.54 | 1.76 |
| 47 | 3.67 | 5.55 | -1.88 | 6.67 | 6.66 | 0.01 | 3.54 | 0.00 |
| 48 | 5.67 | 5.55 | 0.12 | 5.67 | 6.66 | -0.99 | 0.01 | 0.99 |
| 49 | 4.00 | 5.55 | -1.55 | 6.67 | 6.66 | 0.01 | 2.39 | 0.00 |
| 50 | 4.33 | 5.55 | -1.21 | 5.67 | 6.66 | -0.99 | 1.47 | 0.99 |
| 51 | 6.33 | 5.55 | 0.79 | 8.00 | 6.66 | 1.34 | 0.62 | 1.79 |
| 52 | 6.00 | 5.55 | 0.45 | 8.00 | 6.66 | 1.34 | 0.21 | 1.79 |
| 53 | 6.67 | 5.55 | 1.12 | 7.67 | 6.66 | 1.01 | 1.25 | 1.01 |
| $\Sigma$ |  |  |  |  |  |  | 131.13 | 116.33 |

