

## Differences in Learning Outcomes in Long Jump Squatting Through the Application of Demonstration Methods and Training Methods in Class XI Students of SMA Negeri 2 Central Maluku

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### Abstract

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The research aims to determine and analyze the comparison of learning outcomes for the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku. Data obtained through a survey using observation sheets and question sheets to assess the comparison of student learning outcomes. After the data is obtained, the data is then analyzed using the independent sample t test formula (*Independent-Sampel-T-Test*). Based on the results of data analysis and hypothesis testing, the results obtained are based on the mean and standard deviation values that have been analyzed  $t_{count}$  is 4.03 for  $t_{table}$  is 2.06 which means that  $t_{count} > t_{table}$  ( $4.03 > 2.06$ ) while for  $t_{table}$  2.79 with  $t_{count}$  4.03 points  $t_{count} > t_{table}$  ( $4.03 > 2.79$ ) then the alternative hypothesis ( $H_a$ ) accepted. In accordance with the hypothesis formula  $H_0$ : there is no difference in the results of learning the squat style long jump between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku. Meanwhile for  $H_1$ : there is a difference in the results of learning the long jump squat style between the demonstration method and the training method in class XI students at SMA Negeri 2 Central Maluku. So based on the results of the analysis above, it can be concluded that there is a significant difference in learning outcomes for the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

**Keywords:** Learning outcomes, squat style long jump, demonstration method, training method, comparison

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## INTRODUCTION

Physical education aims not only to improve basic movement skills, good physical fitness also improves students' effective and cognitive characteristics. This means that physical education not only plays a role in improving physical fitness but also helps students' thinking power in learning. Physical education is an educational process through physical activities, games or sports chosen to achieve educational goals.

There is a lot of material that improves the physical level of students, one of which is the long jump according to Aip Syarifudin in Prasetyo (2016), which is a movement that jumps forward upwards in an effort to carry the point of body weight as long as possible in the air (floating in the air) which is done quickly and by doing push off on one leg to reach as far as possible.

And one of the movements is the squat style, according to Aip Syarifudin in Prasetyo (2016), the long jump is the squat style as follows: "When leaving the ground (support board), the state of the body's posture in the air is squatting, by rounding the body with both knees bent, both arms forward. When you are about to land, both legs are extended forward." So teachers must be able to design effective learning for students and also be able to improve learning outcomes with methods that are good for students. To be able to do this technique, both teachers and students must be prepared with things that will prevent the body from getting injured when doing this movement.

According to Purnomo et.,al (2019), physical education teachers need to pay close attention to determining physical education learning methods for sports and health. According to Ahmad Sabri in Hanafi et.,al (2018) stated that learning methods are methods or techniques for studying learning materials used by teachers when presenting learning materials either individually or in groups to their students. Furthermore, according to WJS. Poerwadarminta in Darmadi (2017) states that a method is an organized and well thought out way to achieve a goal. Based on the opinion above, it can be concluded that the method is the teacher's way of guiding students to achieve the goals they want to achieve, the use of appropriate and effective methods during learning really helps teachers to deliver material well and can be well received by students and this is of course create a pleasant learning atmosphere for students. Learning methods consist of many models, there are two types of methods chosen by the author to be applied in schools, namely the demonstration method and the practice method. The demonstration method is a method of presenting lessons by demonstrating and demonstrating to students a particular process, situation or object, either actually or just an imitation Majid (2017). Furthermore, according to Syaiful in Wedyawati & Lisa (2019) states that the demonstration method is a demonstration of the process of an event or object occurring up to the appearance of exemplified behavior so that it can be known and understood by students in real or imitation. Meanwhile, according to Pribadi in Kusumawati & Irwanto (2016), the training method is also called the term *drill*, namely a method that emphasizes intensive and repetitive practice with the aim that students can master specific skills, then according to Majid (2017) as a method *drill* is a way of teaching students to develop skills and abilities as well as develop attitudes and habits. Based on the opinions of experts, it can be concluded that the training method is a way of learning in which students carry out training activities to increase students' skills and this training method trains students on the material that has been taught so that they have dexterity in their skills.

The thing that makes the author use these two methods is because the two methods have different levels of technical application. Apart from that, these two methods are easy for students of all grades to understand.

Based on the results of observations, the author was encouraged to study and conduct research with the research title "Comparison of Long Jump Learning Results in Squat Style Between Demonstration Methods and Training Methods in Class XI Students of State High School 2, Central Maluku".

## METHOD

This research is research *comparative*, namely comparative research, using method *survey*.

The population in this study were class XI MIA students, with a sample size of 25 people at SMA Negeri 2 Central Maluku on 03-12 August 2023.

The treatment instrument in this research was a squat long jump movement test using an observation sheet and question sheet.

After completing the activities and collecting and measuring each variable, it is then processed and analyzed using the independent sample t test formula (*Independent-Sampel-T-Test*)

Information :

X1: group 1 value

X2: group 2 value

n1: number of respondents in group 1

n2: number of respondents in group 2

s1: standard variance of group 1

s2: group standard variance

## RESULTS

This research aims to determine the comparison of student learning outcomes using two different methods. The data obtained can be grouped into two data, namely learning results using the demonstration method and the training method. It is explained in the following table:

**Table 1. Description of Learning Results for Long Jump Squat Style Demonstration Method**

| No. | Respondent | Demonstration method |
|-----|------------|----------------------|
| 1.  | U. A. T    | 64                   |
| 2.  | T. M       | 62                   |
| 3.  | S. S. W    | 68                   |
| 4.  | R. F. S    | 64                   |
| 5.  | R. G. N    | 61                   |
| 6.  | R. A       | 63                   |
| 7.  | R. A. W    | 64                   |
| 8.  | N. I. W    | 64                   |
| 9.  | I. W       | 61                   |
| 10. | G. R       | 59                   |
| 11. | F. A. K    | 62                   |
| 12. | F. W       | 67                   |
| 13. | E. W. O    | 64                   |
| 14. | D. S. P    | 58                   |
| 15. | A. L. A    | 61                   |
| 16. | A. T       | 57                   |
| 17. | TO THE     | 63                   |
| 18. | A. M. T    | 65                   |
| 19. | A. S       | 57                   |
| 20. | S. W       | 63                   |

|     |         |    |
|-----|---------|----|
| 21. | W. W    | 55 |
| 22. | T. R. M | 52 |
| 23. | W. R. S | 60 |
| 24. | F. L    | 63 |
| 25  | P. P. M | 60 |

**Table 2. Description of Learning Result Values for Long Jump Squat Style Training Method**

| No. | Respondent | Practice Method |
|-----|------------|-----------------|
| 1.  | U. A. T    | 76              |
| 2.  | T. M       | 75              |
| 3.  | S. S. W    | 80              |
| 4.  | R. F. S    | 75              |
| 5.  | R. G. N    | 81              |
| 6.  | R. A       | 73              |
| 7.  | R. A. W    | 79              |
| 8.  | N. I. W    | 74              |
| 9.  | I. W       | 74              |
| 10. | G. R       | 80              |
| 11. | F. A. K    | 76              |
| 12. | F. W       | 71              |
| 13. | E. W. O    | 78              |
| 14. | D. S. P    | 77              |
| 15. | A. L. A    | 80              |
| 16. | A. T       | 74              |
| 17. | TO THE     | 84              |
| 18. | A. M. T    | 77              |
| 19. | A. S       | 78              |
| 20. | S. W       | 79              |
| 21. | W. W       | 78              |
| 22. | T. R. M    | 77              |
| 23. | W. R. S    | 75              |
| 24. | F. L       | 75              |
| 25  | P. P. M    | 80              |

### 1. Data analysis

After obtaining data from students using the demonstration method and training method, it is continued with analysis which aims to test the truth of the hypothesis that has been formulated. The hypothesis will be accepted or rejected depending on the results of the data processing that will be carried out. Then the following data can be obtained.

- a. Frequency distribution data on the results of learning the squat style long jump using the demonstration method

Data on learning outcomes using the demonstration method are made in a frequency distribution list.

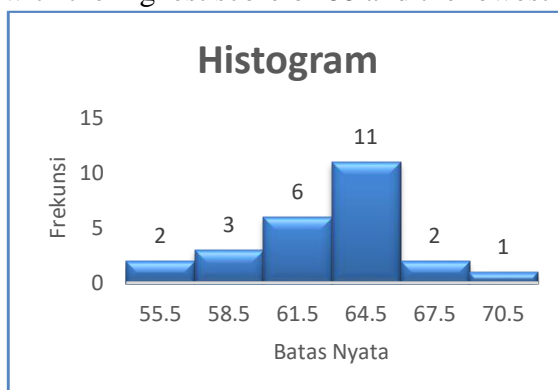
$$\begin{aligned}
 \text{Range (R)} &= \text{highest value-lowest value} \\
 &= 68-52 \\
 &= 16 \\
 \text{Many classes (K)} &= 1 + 3,3 \log n \\
 &= 1 + 3,3 \log 25 \\
 &= 1 + 4,613 = 5,613 \\
 \text{Class length (P)} &= R/K \\
 &= 16/5.613 = 2.85 \text{ rounded to } 3
 \end{aligned}$$

Based on the data above, a frequency distribution table of learning outcomes data can be created using the following demonstration method:

**Table 3. Frequency Distribution Table of Demonstration Method Learning Results**

| No | Interval | Be | Real Limits | $X_i$ | $X_i^2$ | $Fi.X_i$ | $Fi.X_i^2$ |
|----|----------|----|-------------|-------|---------|----------|------------|
| 1. | 52-55    | 2  | 55,5        | 52,5  | 2756,3  | 105      | 11025      |
| 2. | 55-58    | 3  | 58,5        | 55,5  | 3080,3  | 166,5    | 27722,3    |
| 3. | 58-61    | 6  | 61,5        | 58,5  | 3422,3  | 351      | 123201     |
| 4. | 61-64    | 11 | 64,5        | 61,5  | 3782,3  | 676,5    | 457652     |
| 5. | 64-67    | 2  | 67,5        | 64,5  | 4160,3  | 129      | 16641      |
| 6. | 67-70    | 1  | 70,5        | 67,5  | 4556,3  | 67,5     | 4556,25    |
|    |          | 25 |             |       | 21757,5 | 1495,5   | 640797,8   |

From table 4.2 above, it can be clear that the interval of R/K, namely the range, is divided by the number of classes, so you can get the interval from the data above, namely 4, then also get the frequency from the data interval above. Middle value ( $x_i$ ) is obtained from the interval above, while the value ( $x_i^2$ ) is obtained from the middle value ( $x_i$ ) which is squared. For ( $Fi.x_i$ ) is obtained from the frequency multiplied by the middle value of the data, and the value ( $Fi.x_i^2$ ) is obtained from the frequency multiplied by the mean value which has been squared. The total frequency of learning outcomes data using the demonstration method is 25 people with the highest score of 68 and the lowest score of 52.



**Figure 1. Frequency distribution of learning outcomes for long jump squat style demonstration method**

After drawing the frequency distribution of the learning outcomes for the squatting style long jump using the demonstration method, you can then find the average value and standard deviation of the learning outcomes for the squatting style long jump using the demonstration method using the formula:

rate rate:

Mean =

Standard Deviation:

SD =

SD =

- b. Frequency distribution data on the results of learning the long jump squat style training method

Data on learning outcomes using the training method are made in a frequency distribution list.

Range (R) = highest value-lowest value  
 $= 84-71 = 13$

Number of classes (K) =  $1+ 3.3 \log n$   
 $= 1 + 3,3 \log 25$   
 $= 1 + 4,613$   
 $= 5,613$

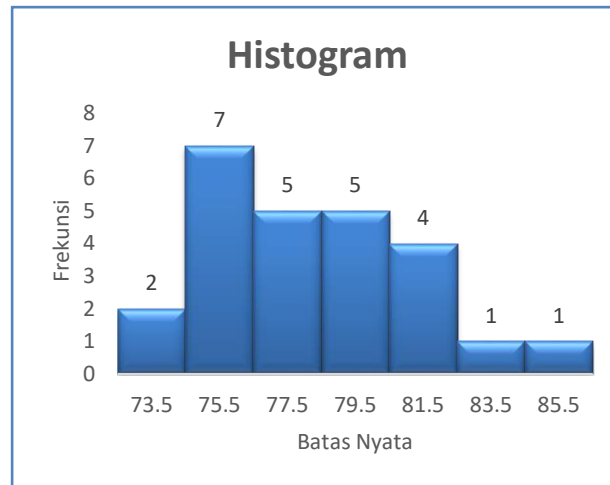
Class length (P) = R/K  
 $= 13/5,613 = 2,31$

Based on the data above, a frequency distribution table of learning outcomes data can be created using the following training method:

**Table 4. Frequency Distribution Table of Training Method Learning Results**

| No | Interval | Be | Real Limits | $X_i$ | $x_i^2$ | $Fi.x_i$ | $Fi.x_i^2$ |
|----|----------|----|-------------|-------|---------|----------|------------|
| 1. | 71-73    | 2  | 73,5        | 71,5  | 5112,25 | 143      | 20449      |
| 2. | 73-75    | 7  | 75,5        | 73,5  | 5402,25 | 514,5    | 264710,3   |
| 3. | 75-77    | 5  | 77,5        | 75,5  | 5700,25 | 377,5    | 142506,3   |
| 4. | 77-79    | 5  | 79,5        | 77,5  | 6006,25 | 387,5    | 150156,3   |
| 5. | 79-81    | 4  | 81,5        | 79,5  | 6320,25 | 318      | 101124     |
| 6. | 81-83    | 1  | 83,5        | 81,5  | 6642,25 | 81,5     | 6642,25    |
| 7. | 83-85    | 1  | 85,5        | 83,5  | 6972,25 | 83,5     | 6972,25    |
|    |          | 25 |             |       | 42155,8 | 1905,5   | 692560,3   |

From table 4. above, it can be clear that the interval of R/K, namely the range, is divided by the number of classes, so you can get the interval from the data above, namely 3, then also get the frequency from the data interval above. Middle value ( $x_i$ ) is obtained from the interval above, while the value ( $x_i^2$ ) is obtained from the middle value ( $x_i$ ) which is squared. For ( $Fi.x_i$ ) is obtained from the frequency multiplied by the middle value of the data, and the value ( $Fi.x_i^2$ ) obtained from the frequency multiplied by the mean value which has been squared. The total frequency of learning result data using the training method is 25 people with the highest score of 84 and the lowest score of 71.



**Figure 2. Frequency distribution of learning outcomes for long jump squat style demonstration method**

After drawing the frequency distribution of the learning outcomes for the squatting style long jump using the demonstration method, you can then find the average value and standard deviation of the learning outcomes for the squatting style long jump using the training method using the formula:

rate rate:

Mean =

Standard Deviation:

SD = =

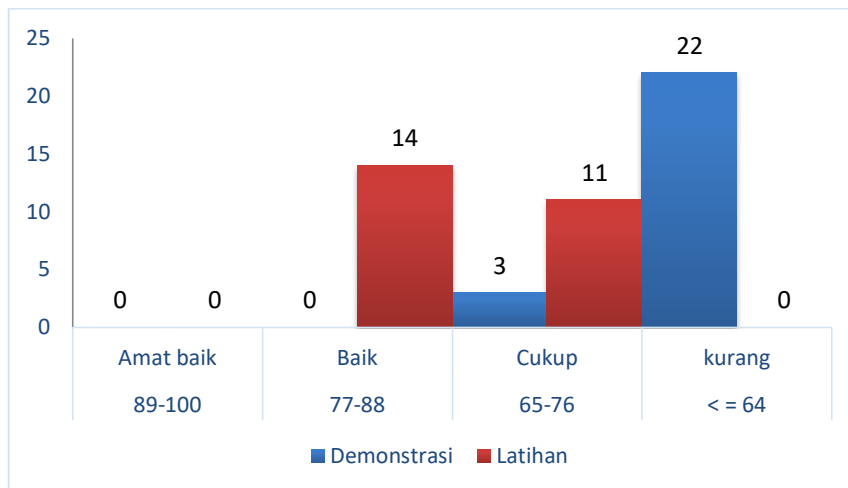
SD = = = 6,16

After finding the average value (mean) and standard deviation (SD) from the two data above, the average value of learning results for long jump squat style demonstration is: 60 and standard deviation: 6.18, while for the average value of the results learning long jump squat style training method is: 76.2 and standard deviation: 6.16. Based on the data from the two variables above, the results obtained from learning the squat style long jump between the demonstration and training methods were as follows.

**Table 5. Comparison of learning outcomes for long jump squatting between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku**

| Interval | Criteria  | Demonstration method | Practice method |
|----------|-----------|----------------------|-----------------|
| 89-100   | Very good | -                    | -               |
| 77-88    | Good      | -                    | 14              |
| 65-76    | Enough    | 3                    | 11              |
| <=64     | Less      | 22                   | -               |

From table 5, the comparison of learning results for long jump squatting between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku above is depicted in the histogram below:



**Figure 3. Variable Learning Outcomes in Long Jump Squat Style Between Demonstration and Practice Methods**

From table 5 and figure 3, it can be seen that more students achieved good grades when learning using the practice method, namely when learning using the practice method, there were 19 students who got good scores, whereas when learning using the demonstration method there were no students who got good criteria. And the very good criteria were only achieved when using the practice method, namely 6 students, while the adequate criteria were only achieved when using the demonstration method, namely 21 students, then the poor criteria were only achieved when using the demonstration method, namely 4 students.

From the above learning scores for class

## 2. Hypothesis test

This research aims to determine the comparison of long jump and squat learning outcomes between the demonstration method and the training method in class XI students at SMA Negeri 2 Central Maluku. Then test the research hypothesis, with analysis using the following formula:

Information :

$d$  = difference between the after score and the previous score for each subject (i)

$Md$  = average of gain

$xd$  = deviation of the gain score from the mean

$xd^2$  = square of the deviation of the gain score from the mean

$n$  = number of samples

with  $dk = (n-1)$  and significance level  $\alpha 0.05$   $dk = 25-1=24$

The hypothesis of this research is:

$H_0$  = There is no difference in the results of learning the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

$H_1$  = There is a difference in the results of learning the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

$H_0$  accepted if  $t \text{ count} < t \text{ table}$

$H_0$  rejected if  $t \text{ count} > t \text{ table}$

**Table 6. T Test Value of Long Jump Learning Results in Squat Style Between Demonstration Method and Practice Method**

|     | Mark                 |                 | Gain (d) | Xd  | xd <sup>2</sup> |
|-----|----------------------|-----------------|----------|-----|-----------------|
|     | Demonstration method | Practice method |          |     |                 |
| 1.  | 64                   | 76              | 12       | -4  | 16              |
| 2.  | 62                   | 75              | 13       | -3  | 9               |
| 3.  | 68                   | 80              | 12       | -4  | 16              |
| 4.  | 64                   | 75              | 11       | -5  | 25              |
| 5.  | 61                   | 81              | 20       | 4   | 16              |
| 6.  | 63                   | 73              | 10       | -6  | 36              |
| 7.  | 64                   | 79              | 15       | -1  | 1               |
| 8.  | 64                   | 74              | 10       | -6  | 36              |
| 9.  | 61                   | 74              | 13       | -3  | 9               |
| 10. | 59                   | 80              | 21       | 5   | 25              |
| 11. | 62                   | 76              | 14       | -2  | 4               |
| 12. | 67                   | 71              | 4        | -12 | 144             |
| 13. | 64                   | 78              | 14       | -2  | 4               |
| 14. | 58                   | 77              | 19       | 3   | 9               |
| 15. | 61                   | 80              | 19       | 3   | 9               |
| 16. | 57                   | 74              | 17       | 1   | 1               |
| 17. | 63                   | 84              | 21       | 5   | 25              |
| 18. | 65                   | 77              | 12       | -4  | 16              |
| 19. | 57                   | 78              | 21       | 5   | 25              |
| 20. | 63                   | 79              | 16       | 0   | 0               |
| 21. | 55                   | 78              | 23       | 7   | 49              |
| 22. | 52                   | 77              | 25       | 9   | 81              |
| 23. | 60                   | 75              | 15       | -1  | 1               |
| 24. | 63                   | 75              | 12       | -4  | 16              |
| 25  | 60                   | 80              | 20       | 4   | 16              |
|     |                      |                 | 389      |     | 589             |

After getting the data from table 4.5 above, then calculate the Md value (average of gain) using the formula:

Md =

From the t test above, it can be explained that the gain value (d) is the difference between the learning outcomes using the demonstration method and the practice method. Then the xd value is obtained from the total gain value (d) minus the number of samples, namely = 15.56 rounded to 16. Next is the xd value<sup>2</sup> obtained from xd squared. After that, hypothesis testing is carried out using the following t test formula:

$$= 4,03$$

The research hypothesis testing criteria above are explained as rejecting H<sub>0</sub> if  $t_{count} > t_{table}$  and accepted if  $t_{count} < t_{table}$ . With  $t_{table}: \alpha = 0.05$  and  $dk = n-1 = 24$  then we get  $t_{table} = 2.06$  and  $t_{count} = 4.03$ . It turns out  $t_{count} > t_{table}$  ( $4.03 > 2.06$ ). While when  $t_{table}$

$\alpha = 0.01$  and  $dk = n-1 = 24$  then we get  $t_{table} = 2.79$  and  $t_{count} = 4.03$ . It turns out  $t_{count} > t_{table}$  ( $4.03 > 2.79$ ) from the explanation above then  $H_0$  rejected. Which means  $H_a$  accepted, or there is a difference in the results of learning the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

## DISCUSSION

This research was designed to find out the comparison of the results of learning the squat style long jump between the demonstration method and the practice method. Researchers feel it is necessary to conduct research to use it as a reference in choosing the right method to improve student learning outcomes.

The sample in this study was the total number of students in class XI MIA 1 SMA Negeri 2 Central Maluku, totaling 25 people. After analyzing the data and research hypothesis using the t test formula, the results were obtained, namely the average (mean) value of the results of learning the squat style long jump using the demonstration method was 60, while the average (mean) value of the training method was 76.2. The standard deviation of the demonstration method learning outcome value is 6.18 and the standard deviation of the practice method learning outcome value is 6.16

From the research results obtained, it is explained in figure 4.3. The criteria for obtaining very good (80-90) were only found in the results of learning using the practice method, namely 6 students. Furthermore, the good criteria are only found in the learning outcomes using the practice method, namely 19 students. Meanwhile, the sufficient criteria (58-68) were only obtained from learning results using the demonstration method, namely 21 students. And for the insufficient criteria ( $\leq 57$ ) there were 4 students when using the demonstration method.

To test the hypothesis whether there is a significant difference in the results of learning the squat style long jump or not between the demonstration method and the training method, a hypothesis  $H_0$ : there is no difference in the results of learning the squat style long jump between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku. Meanwhile for  $H_1$ : there is a difference in the results of learning the squat style long jump between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku. In the t test carried out above, based on the mean and standard deviation values that have been analyzed,  $t$  is obtained  $t_{count}$  is 4.03 for  $t_{table}$  is 2.06 which means that  $t_{count} > t_{table}$  ( $4.03 > 2.06$ ) while for  $t_{table}$  2.79 with  $t_{count}$  4.03 points  $t_{count} > t_{table}$  ( $4.03 > 2.79$ ) then the alternative hypothesis ( $H_a$ ) accepted. So there is a significant difference in the results of learning the squat style long jump between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

## CONCLUSION

The results of learning the squat style long jump using the demonstration method received an average score of 60 with sufficient (58-68) totaling 21 students, for the insufficient criteria ( $\leq 57$ ) totaling 4 students. Meanwhile, the criteria are very good (80-90) and good (69-79), no students received a score according to these criteria.

The results of learning to squat long jump using the training method received an average score of 76.2 with very good criteria (80-90) totaling 6 students, for good criteria (69-79) totaling 19 students. Meanwhile, there were sufficient criteria (58-68) and insufficient criteria ( $\leq 57$ ).

After testing the hypothesis using the t test formula, the results of t are obtained  $t_{count}$  of 4.03 while the t value  $t_{table}$  significant level  $\alpha 0.05 = 2.06$ . So the value of  $t_{count} > t_{table}$  ( $4.03 > 2.06$ ) while the t value  $t_{table}$  significant level  $\alpha 0.01 = 2.79$ . So the value of  $t_{count} > t_{tabel}$  ( $4,03 > 2,79$ ) eyes  $H_0$  automatically rejected, namely that there is a difference in the results of learning the long jump squat style between the demonstration method and the training method for class XI students at SMA Negeri 2 Central Maluku.

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