# EFFECTIVENESS OF SLOW-MOTION VIDEO PRESENTATION IN THE PERFORMANCE OF SNHS STUDENTS IN ARNIS

Grant Carl D. Diaz

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# EFFECTIVENESS OF SLOW-MOTION VIDEO PRESENTATION IN THE PERFORMANCE OF SNHS STUDENTS IN ARNIS

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*This research study aimed to improve the academic performance through the use of Slow-motion video intervention. Performance have been a manifestation of assessing the progress of the students. However due to the threat of covid 19 pandemic, everybody has adapted an adjustment to continue the teaching and learning process. On the other hand, the curriculum that is used during the normal school set up, have been changed into a curriculum called Most Essential Learning Competencies or (MELCS) where curriculum have been scrutinize into the situation where it can fit in or is available on the learners' capacities without compromising the ordered protocols. The new curriculum in the new normal set up have been a challenge to both learners as well as the teachers. A challenge especially for MAPEH teachers which the subjects require more of performances and other recreational activities. But due to the technological enhancements for the past years, the researcher believes that technology serves as the backbone of today's education. And with the growing improvements of technology useful applications have also arise. And thus, applications in both laptops, mobile phones and any other devices can help the teaching process regardless of today's situation. This research used a two tailed paired correlated t-test in order to determine the level of performance of the students in Arnis using the normal video and the slow motion video intervention and that it determined if the groups have a significant difference that claims the researcher's intervention as effective.*

*{Keywords: mobile apps, Arnis in ODL, video editing, slow-mo video for teaching PE}*

## I. Context and Rationale

Teaching Arnis plays a role in the field of physical education whereas it is pre-determined as a core that teaches self-discipline and control. Arnis, which is also known as Kali or Eskrima is known as the National Martial art and sport of the Philippines.

According to readings about the DECS Memorandum for the inclusion of Arnis Seminar, 1995. The earliest historical record was said to be the DECS Memorandum no. 294 series of 1995 known to be "Arnis Development Program

Phase I”**.** This was a united effort of the Department of Education Culture of Sports (DECS) over the Bureau of Physical Education and School Sports (BPESS), with the support of the office of then senator Orlano “Orly” Mercado who gave the budget for the enactment of the National Arnis program. The continuation of the Phase I through the DECS Memorandum No. 302, series of 1997, which is the next stage was said to be the Arnis Development Program Phase II-Level I and II. In this memorandum, there were two seminars conducted on the following dates; October 6-11, 1997 held on Baguio City and November 10-15 held in General Santos City on the same year.

Other developments of Arnis are as follows:

a.) The progress of the implementation of Arnis has been seen again when the Task force on School Sports in 2006 had a new program for Arnis. This program was entitled as “National Training of Trainors in Arnis and Dance Sports” held during the teacher’s camp in Baguio city on March 13-17, 2006. The program was supported by the task Force on School Sports, Department of Education (DepEd);

b.) As a demonstration of sport, Arnis became part of the Palarong Pambansa (National Games). In 2006 the National Games was held in Naga City, Bicol Region that were participated by 9 out of 17 regions of the Philippines. Mr. Ramon L. Lobos was selected to be the tournament manager in Arnis because of his determinations to include the event on the National Games

c.) The conduct of Mr. Aniano Lota Jr. and Mr. Richardson Gialogo of the national, regional and provincial Arnis Seminar from year 2006-2007 with the

coordination of TFSS National Coordinator, Mr. Feliciano “Len” Toledo and the help of financial and logistical support of Department of Education

d.) Arnis already became a regular event on the Palarong Pambansa that was joined by all of the 17 regions of the Philippines in 2007 held in Coronadal City in Mindanao. Where five weight divisions in full contact event and four categories in the Anyo (Forms) event were played and became part of the official medal tally of the participants

e.) Arnis was declared as the National Martial arts and Sport that was authored and co-sponsored by Migz Zubiri and was signed by the former President Gloria Macapagal Arroyo on 2010 that is known as Republic Act 9850. Because of the said republic act along with the Department of Education Arnis Association of the Philippines or the (DEAAP) Supervision, Arnis has become a mandatory to be taught among elementary and secondary schools which gives the students an opportunity to be able to learn the sport. Thus, the researcher during his two-year experience in teaching in the midst of pandemic observed some struggles with regards in teaching physical education as a whole in an online distance learning.

Today, Teachers are using MELCS as a guide for the competencies that are needed to be attained. This also serves as the basis of the teachers to any topic that they are going to discuss as long as it caters the objectives of the MELCS. Indicated in MELCS for MAPEH Grade 7- PE7GS-IID-5, students are expected to be able to;

1.) Describe the nature and background of the sport, and PE7GS-IId-h-4

2.) Execute the skills involved in the sport.

The teacher researcher chooses Arnis as the sport to be taught for it is the most convenient in time, execution, space and that students can be able to perform especially at this time of pandemic. Sorsogon National High School is also active in giving support to Arnis as sport, that it's open for the potential players and has already athletes who joins the events in intramurals and also city meet before the pandemic.

On the regular set up, teachers were teaching Arnis through actual demonstration. But currently, MAPEH Teachers are using some other teaching methods in order to pursue on implanting skills even on the current status of the world. In the midst of adaptation of the new normal set- up, the researcher saw the advantages and disadvantages of technological aspects that was required on the present situation. And that leads to the creation of the innovation that the researcher think may help the teachers on surviving teaching skills on pandemic.

The educational system is very much dependent on the use of technologies nowadays and this revolves on the fact that people need help from technological devices and its available applications, in order to pursue teaching as well as learning. With the known capability of technological aspects these days, the researcher has realized that there are a lot of ways to improve and help teachers in teaching skills in the new normal and this is through innovation that can help teachers provide quality education.

**II. Innovation, Intervention and Strategy**

In the normal and new normal set ups, technology creates its biggest role in making the educational strategies become easier and convenient. Thus, in this

new normal set up, gadgets are being used in creating materials for teaching such as videos but with the limitations that were included in the nature of technology, there are problems that occurred in the actual lesson proper. Since teaching Arnis requires movement and skills, it is already understood that videos are the most preferable and convenient teaching material to use. Hence in the researcher's two-year experience in teaching, it is observed that using just the regular videos doesn't give enough guarantee to provide quality skills to students with the fact that not all students are body kinaesthetic.

However, based on the personal observation of the researcher, students were after the trends on "*tiktok*" nowadays and they can acquire dancing skills through the use of slow-motion video tutorials. And that's where the researcher come up with the idea of this kind of intervention in order to improve the performance of Sorsogon National High School Grade-7 students in Physical Education -Arnis during the Covid 19 pandemic, teachers need an innovative way of giving video tutorials to the students to minimize time and make the students acquire the skills accurately. Slow motion video is an innovative intervention that the researcher have created from the normal video and this will become an intervention to address the concern of this study.

The researcher used the normal video without being edited during the first meeting and on the second, the researcher used the edited video with -0.5x speed than the normal video in teaching 7-Assertiveness. The content of the video have been checked and confirmed by one of the master teachers in MAPEH. The

teacher- researcher played the videos on the scheduled class. The students are asked to perform in after every two sets.

**III. Action Research Questions**

This action research aimed to improve performance of Sorsogon National High School Grade-7 students in Arnis through creating slow-motion video intervention. Specifically, this action research sought to answer the following questions:

1. What is the level of performance of Grade 7- Assertiveness in Arnis under the usage of a normal video speed?
2. What is the level of performance Grade 7- Assertiveness in Arnis under the usage of slow - motion video presentation?
3. Is there a significant difference on the level of performance on selected grade 7- Assertiveness in the usage of normal video and slow - motion video intervention?

**IV. Action Research Method**

This research used a pre-experimental research design. Specifically, a static – group design where in both of the video presentations will be played and performances have been observed in a class and have been compared. This research aimed to see the difference of the progress of the performance of the students. In this type of pre-experimental design, the class performance have been compared base on the given treatment, the researcher play a video presentation with a normal speed and the same video was edited to -0.5x speed to teach 7-Assertiveness using the slow-motion video presentation.

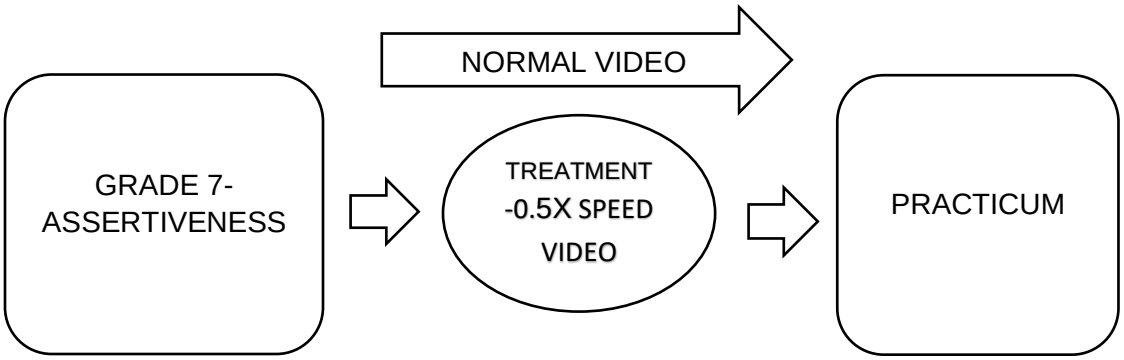


Figure 1. Static Group Design Pre-Experimental Research Design

**A. Participants and /or other Sources of Data and Information**

Purposive sampling have been used in this research. The teacher-researcher have purposively choose grade 7- section Assertiveness.

| 7-Assertiveness | Population |
|---|---|
| Boys | 5 |
| Girls | 10 |
| Total | 15 |

Table 1: The Respondents

**B. Data Gathering Methods**

The rubric served as the measurement in order to make a comparison for both of the performances before and after the treatment have been implemented. The teacher observed the effectiveness of the treatment in the actual conduct of the assessment (practicum). The data gathering started at the time that the researcher sought a permission to the Office of the Principal and submitted letters to the parents that permits to conduct the research. The teacher-researcher conducted a separated schedule for both class meetings for the presentation and

afterwards conducted a practicum. The teacher used Google meet as a platform in conducting the class. The teacher presented the videos and after every two set, students are asked to perform. Then afterwards, the result have measured by means of the created rubrics with the help of the evaluator who is a MAPEH Teacher & is a coach and a trainer of the Arnis Athletes in Sorsogon National High School. The results have determined the performance of the student if it has improved through the use of the intervention. The two results have been compared before and after the application of the intervention.

The researcher measured the level of performance of 7 Assertiveness with the use of the Normal Video Assessment in Arnis, the result of the overall ratings of the students in their performance have been treated by getting the mean and the PL which is Mean $\bar{X}$= Total Scores of the students / total number of students and MPS/PL= Compute Mean/ no. of Items.

The same formula is used in measuring the level of performance of 7 Assertiveness with the use of Slow-motion video assessment in Arnis, the result of the overall ratings of the students in their performance through getting the mean and the PL which is computed as Mean $\bar{X}$= Total Scores of the students / total number of students and MPS/PL= Compute Mean/ no. of Items.

Finally, in determining if there is a significant difference between the level of performance of 7 Assertiveness in Arnis after using the Normal Video and Slow-motion Video Assessments, the researcher used a two-tailed paired correlated T-test, this was for the reason that it uses both positive and negative

tails of the distribution. In short, it tests for the possibility of positive and negatyive differences.

A t- test is a type of inferential statistics that is used in order to determine if there is significant difference between the means of two groups.

Formula is as shown below.

T- Test Formula:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Where t is equal to the difference between the first mean and the second mean all over the square root of the product of the number of observation for the first set of data minus one multiplied to its standard deviation squared plus number of observation for the second set of data minus one multiplied to its standard deviation squared all over the sum of the two number of observations minus 2 and the sum of the reciprocals of the two number of observations.

The importance of this over all computation to this research was to get the exact rating for both observations in order to be able to compare the level of performances of the students and to test if the intervention that has been implemented is effective which will be determined to the purpose of hypothesis.

**V. Discussion of Results and Reflection**

The tables that were shown below explains and interprets the results based on the evaluated performance of the selected Grade 7 Assertiveness students in Arnis.

**Table 2**
**Rubrics for the Performance in Arnis**

*Rubrics for Stances*

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 |
|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the Arnis basic stances and may start teaching others. | Demonstrates good knowledge of Arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. |
| ORGANIZATION OF MOVEMENTS | Always Performs movement in proper order. | Frequently performs movement in proper order. | Rarely performs movement in proper order, | Never performs movement in proper order. |

*Rubrics for Strikes*

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 |
|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the arnis basic stances and may start teaching others. | Demonstrates good knowledge of arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. |
| ORGANIZATION OF MOVEMENTS | Always Performs movement in proper order. | Frequently performs movement in proper order. | Rarely performs movement in proper order, | Never performs movement in proper order. |

Table 2 showed the rubrics use in assessing and evaluating the performance of the selected Grade 7 Assertiveness students in Arnis. The rubrics have 6 criterion all in all in which students could get 4 points if *Excellent*, 3 points

if *Proficient,* 2 if the performance is *Adequate* and 1 if the performance is *Fair*. The students needed to have 24 points for a total perfect score.

**Problem 1**

What is the level of performance of Grade 7- Assertiveness in Arnis under the usage of a normal video speed?

**Table 3**
**Level of Performance of the students in Arnis using Normal Video**

| Stances: Normal Video | Strikes: Normal Video | Normal Overall |
|---|---|---|
| 9 | 10 | 19 |
| 9 | 10 | 19 |
| 11 | 10 | 21 |
| 11 | 10 | 21 |
| 7 | 7 | 14 |
| 10 | 10 | 20 |
| 10 | 11 | 21 |
| 11 | 9 | 20 |
| 10 | 10 | 20 |
| 10 | 9 | 19 |
| 9 | 8 | 17 |
| 8 | 6 | 14 |
| 9 | 6 | 15 |
| 10 | 11 | 21 |
| 8 | 12 | 20 |
| **Mean: 9.47** | **Mean: 9.27** | **Mean: 18.73** |

Table 3 showed the result of the level of performance of the selected grade 7-Assertiveness students in Arnis using the normal video. The overall mean in using the normal video was 18.73. The researcher supposed based on the students; performance that this was the usual level of performance of the students in Arnis using the normal video as their guide in acquiring the skills and movement. Based on the overall computations of their scores, 3 students had *adequate*

performances, and the majority are *proficient* rate to their performances in Arnis as well. Through the process of this research study, the researcher had high hopes that students could acquire more skills and do better if the materials will be a lot more detailed just like what slow-motion video intervention does. This just proved what Wilson T. Ibańez on his Multicultural Education 8(5), 2022 study stated that teaching physical education amidst Covid-19 Pandemic is not a simple undertaking and that the association of creating an excellent learning for students in an online transfer of learning of Physical Education is uncertain. And not just in pandemic but also on the post pandemic.

**Problem 2**

What is the level of performance Grade 7- Assertiveness in Arnis under the usage of slow - motion video presentation?

**Table 4**
**Level of Performance of the Students in Arnis under the usage of Slow-motion Video Intervention**

| Stances: Slow motion Video Intervention | Strikes: Slow motion Video Intervention | Overall: Slow-Motion Video Intervention |
|---|---|---|
| 11 | 11 | 22 |
| 11 | 10 | 21 |
| 10 | 11 | 21 |
| 10 | 9 | 19 |
| 10 | 10 | 20 |
| 10 | 10 | 20 |
| 10 | 11 | 21 |
| 11 | 9 | 20 |
| 11 | 9 | 20 |
| 10 | 11 | 21 |
| 11 | 9 | 20 |
| 9 | 11 | 20 |
| 9 | 9 | 18 |
| 11 | 10 | 21 |
| 12 | 12 | 24 |
| **Mean: 10.4** | **Mean: 10.13** | **Mean: 20.53** |

Table 4 revealed the level of performance of the selected Grade 7-Assertiveness students in Arnis under the usage of slow-motion video presentation. The overall mean using the slow-motion video intervention is 20.53. The results shows that there is an improvement in the performances of the students with the help of the slow-motion video intervention. Based on the presented results, majority of the students gained a proficient scores, and one of the students got a perfect score.

The result of the performance in Stances showed a significant difference between the Normal and Slow-Motion Video intervention. That was most likely to be caused of such factor/s; a.) Stances Needed Appropriate Execution and not just fixed points to follow for it cultivates form and power- (Guerrero Arnis Demano, 2016) which means that Students perhaps had to focus more on learning the stances which in able to position themselves for strikes and/or use their range effectively, without the particular stance, they cannot move accurately. Just like what Nathan Bernardo have stated on his article online, to be effective in Arnis, the body and the body parts which are used and which produces power needs a base support; b.) Multiple Intelligences could be one of the factors why some students can follow the movements accurately. Some students are Body Kinaesthetic (Howard Gardner's Theory).

While, the result of the performance in Strikes implied that there is no significant difference between the Normal and Slow-Motion Video Intervention that probably assumed to be affected by such factor: a.) Unlike the Stance, Strikes have *fixed striking points* in Arnis where it was perhaps much easier for students

to follow the order of points where to strike. According to the Article published by Guerrero Arnis Demano on July 1, 2016, in practicing Strikes in Arnis, students need to practice it repeatedly and continuously. Because the consciousness of the target and repeating the 12 strikes helped in shaping retention, muscle memory and muscle conditioning that's why students got it way faster and easier.

**Problem 3**

Is there a significant difference on the level of performance on selected grade 7-Assertiveness in the usage of normal video and slow - motion video intervention?

**Table 5**
**Overall Level of Performance of the selected students in the usage Of Normal video & Slow-motion Video Intervention**

| NORMAL: OVERALL SCORES | SLOW-MOTION VIDEO INTERVENTION: OVERALL SCORES |
|---|---|
| 19 | 22 |
| 19 | 21 |
| 21 | 21 |
| 21 | 19 |
| 14 | 20 |
| 20 | 10 |
| 21 | 21 |
| 20 | 20 |
| 20 | 20 |
| 19 | 21 |
| 17 | 20 |
| 14 | 20 |
| 15 | 18 |
| 21 | 21 |
| 20 | 24 |
| **Mean: 18.73** | **Mean: 20.5** |
| **TOTAL OVERALL MEAN: 1.8** | |

Table 5 represents the overall level of performance of the selected Grade 7 Assertiveness students in the usage of normal video & slow-motion video

intervention. The results show that the overall mean is 1.8. And based on the online calculation for T-test Value on the significance level of the two-tailed hypothesis, the value of t is 2.95 and the value of p is 0.10063 which claims that the null hypothesis/ p value is less than .05 or ($p < 0.5$). The overall results implied that the null hypothesis is rejected. The overall results implied that there is a significant difference between the Normal and Slow-motion video intervention that means that the intervention was effective for it helped the students to learn the appropriate execution and striking point in a more detailed way for slow-motion video (SMV) is operated to capture detailed motion (Utah State University, ICLS 2014 Proceedings).

**VI. Advocacy, Utilization and Dissemination**

The researcher believed that it would be significant for the educators to give effort on emerging new intervention so that the students would continue to learn especially because there are unpredicted crisis that the world may encounter. Even today that the world is going back to face to face classes, still online instruction and education will remain as well as the usage of video lessons because it became as one of the teaching material in the 21st Century. And just like how this research made it to prove that the Slow-Motion Video Intervention can be useful in teaching sports, dance and Physical Education.

The researcher would like to recommend for other learning areas to conduct a research in order to give innovation and that continuously benefit both teachers and learners. The researcher believed that teachers should provide an enormous determination in the development of the strategies and other factors that would

give advancement to the assessment of learning and also performances of the students especially in demand to the present situation.

The result and outcomes of this research have been presented and disseminated through Learning Action Cell (LAC) Session or FGD or Focused Group Discussion per year level in MAPEH. The researcher asked for the head teacher's approval in discussing this paper for utmost purposes and did any means to publish the study in a platform for educational benefit.

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https://digitalcommons.usu.edu › ...PDF Examining How Students Make Sense of Slow-Motion Video_

**VIII. Financial Report**

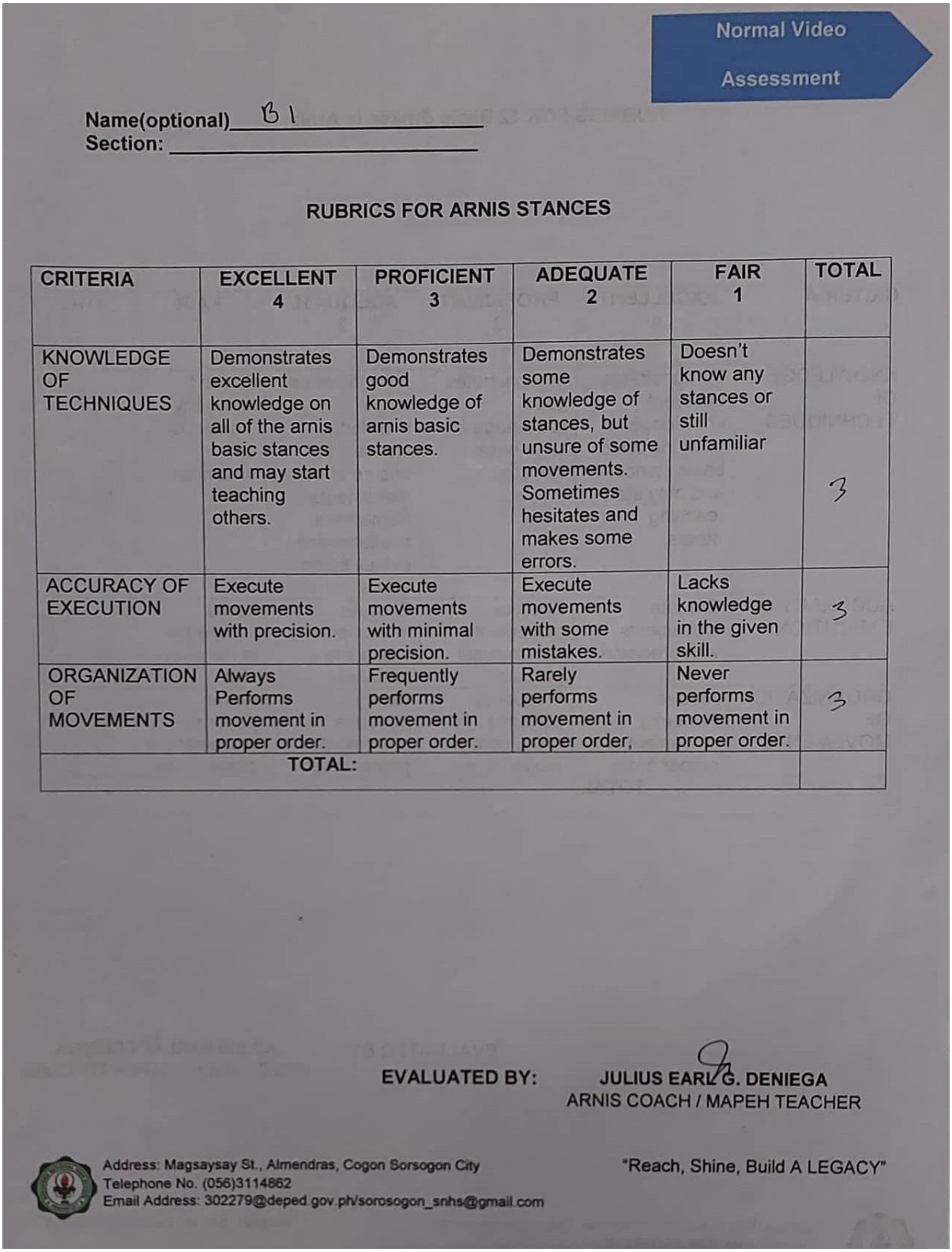
In order to support the needs of the paper from its proposals to the conduct and actual observations for the purpose of this research up to the implementation, the table below shows the expenses that have been spent for the whole process of the research.

| ACTIVITY/DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | TOTAL AMOUNT |
|---|---|---|---|---|
| **Supplies and Materials Expenses** | | | | |
| PAPER, BOND, PG, 70gsm (-5%), size: 210mm x 297mm | 2 | ream | 210.00 | 420.00 |
| SHORT SIZE FOLDER | 2 | ream | 200.00 | 400.00 |
| G tech. Ballpen | 4 | | 75 | 300.00 |
| printing expenses | | | | 2,000.00 |
| Epson inks | 1 | set | 300.00 | 1,200.00 |
| Binder clips | 2 | box | 100.00 | 100.00 |
| transportation expenses | | | | 4,000.00 |
| Photocopying expense | | | | 1,681.00 |
| **Communication Expenses** | | | | |
| Internet Subscription Expenses (Pldt) | | | | 1,699.00 |
| Mobile Connectivity | | | | 1,000.00 |
| Head phone | 1 | | 1000.00 | 1,000.00 |
| **Miscellaneous Expenses** | | | | |
| Other Expenses related to research | | | | 1,000.00 |
| Arnis Cane | 1 | pair | 200.00 | 200.00 |
| **TOTAL** | | | | **Php 15,000.00** |

**Table 9. Financial Report**

## IX. Appendices

The ratings during the practicum. (Normal Video Assessment)



Normal Video Assessment

Name(optional) B1

Section: _____

RUBRICS FOR ARNIS STANCES

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 | TOTAL |
|---|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the arnis basic stances and may start teaching others. | Demonstrates good knowledge of arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar | 3 |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. | 3 |
| ORGANIZATION OF MOVEMENTS | Always Performs movement in proper order. | Frequently performs movement in proper order. | Rarely performs movement in proper order, | Never performs movement in proper order. | 3 |
| TOTAL: | | | | | |

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"Reach, Shine, Build A LEGACY"

## RUBRICS FOR 12 Basic Strikes in Arnis

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 | TOTAL |
|---|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the arnis basic stances and may start teaching others. | Demonstrates good knowledge of arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar | 3 |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. | 4 |
| ORGANIZATION OF MOVEMENTS | Always Performs movement in proper order. | Frequently performs movement in proper order. | Rarely performs movement in proper order, | Never performs movement in proper order. | 3 |
| TOTAL: | | | | | |

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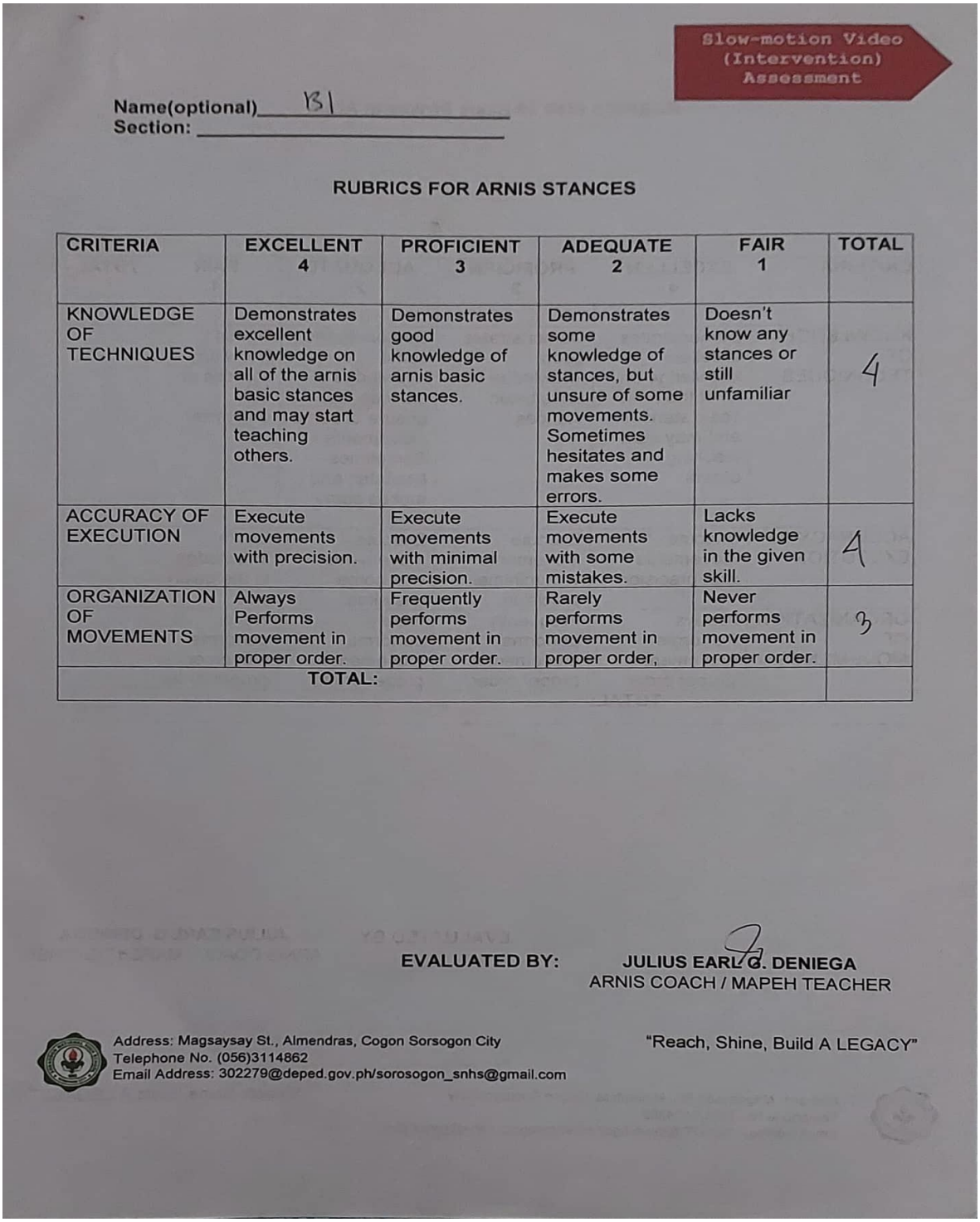
"Reach, Shine, Build A LEGACY"

The ratings during the practicum. (Slow-motion Video Assessment)



Slow-motion Video (Intervention) Assessment

Name(optional) B1
Section: _____

**RUBRICS FOR ARNIS STANCES**

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 | TOTAL |
|---|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the arnis basic stances and may start teaching others. | Demonstrates good knowledge of arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar | 4 |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. | 4 |
| ORGANIZATION OF MOVEMENTS | Always Performs movement in proper order. | Frequently performs movement in proper order. | Rarely performs movement in proper order, | Never performs movement in proper order. | 3 |
| TOTAL: | | | | | |

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"Reach, Shine, Build A LEGACY"

B1

## RUBRICS FOR 12 Basic Strikes in Arnis

| CRITERIA | EXCELLENT 4 | PROFICIENT 3 | ADEQUATE 2 | FAIR 1 | TOTAL |
|---|---|---|---|---|---|
| KNOWLEDGE OF TECHNIQUES | Demonstrates excellent knowledge on all of the arnis basic stances and may start teaching others. | Demonstrates good knowledge of arnis basic stances. | Demonstrates some knowledge of stances, but unsure of some movements. Sometimes hesitates and makes some errors. | Doesn't know any stances or still unfamiliar | 4 |
| ACCURACY OF EXECUTION | Execute movements with precision. | Execute movements with minimal precision. | Execute movements with some mistakes. | Lacks knowledge in the given skill. | 4 |
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| TOTAL: | | | | | |

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"Reach, Shine, Build A LEGACY"

Online T-test Calculations

https://www.socsistatistics.com//tests/studenttest/default.aspx

| Overall | | |
|---|---|---|
| **t-Test: Paired Two Sample for Means** | | |
| | *Variable 1* | *Variable 2* |
| **Mean** | 18.73333333 | 20.53333 |
| **Variance** | 6.352380952 | 1.838095 |
| **Observations** | 15 | 15 |
| **Pearson Correlation** | 0.37905073 | |
| **Hypothesized Mean Difference** | 0 | |
| **df** | 14 | |
| **t Stat** | -2.945941518 | |
| **P(T<=t) one-tail** | 0.005315471 | |
| **t Critical one-tail** | 1.761310136 | |
| **P(T<=t) two-tail** | 0.010630943 | |
| **t Critical two-tail** | 2.144786688 | |
| With significant difference | | |

## T-Test Calculator for 2 Dependent Means

The value of *t* is 2.945942.

*Explanation of results*

The output of this calculator is pretty straightforward. The values of *t* and *p* appear at the bottom of the page. If the text is blue, your result is significant; if it's red, it's not. The only thing that might catch you out is the way that we've rounded the data. The data you see in front of you, apart from the *t* and *p* values, has been rounded to 2 significant figures. However, we did not round when actually calculating the values of *t* and *p*. This means that if you try to calculate these values on the basis of the summary data provided here, you're likely going to end up with a slightly different - and less accurate - result.

| Treatment 1 | Treatment 2 | *Diff* (T2 - T1) | *Dev* (Diff - M) | *Sq. Dev* |
|---|---|---|---|---|
| 19 | 22 | 3 | 1.2 | 1.44 |
| 19 | 21 | 2 | 0.2 | 0.04 |
| 21 | 21 | 0 | -1.8 | 3.24 |
| 21 | 19 | -2 | -3.8 | 14.44 |
| 14 | 20 | 6 | 4.2 | 17.64 |
| 20 | 20 | 0 | -1.8 | 3.24 |
| 21 | 21 | 0 | -1.8 | 3.24 |
| 20 | 20 | 0 | -1.8 | 3.24 |
| 20 | 20 | 0 | -1.8 | 3.24 |
| 19 | 21 | 2 | 0.2 | 0.04 |
| 17 | 20 | 3 | 1.2 | 1.44 |
| 14 | 20 | 6 | 4.2 | 17.64 |
| 15 | 18 | 3 | 1.2 | 1.44 |
| 21 | 21 | 0 | -1.8 | 3.24 |
| 20 | 24 | 4 | 2.2 | 4.84 |
| | | M: 1.8 | | S: 78.4 |

Significance Level:

- ○ 0.01
- ◉ 0.05
- ○ 0.10

One-tailed or two-tailed hypothesis?:

- ○ One-tailed
- ◉ Two-tailed

Difference Scores Calculations

*Mean*: 1.8
$\mu = 0$
$S^2 = SSdf = 78.4/(15-1) = 5.6$
$S^2_M = S^2/N = 5.6/15 = 0.37$
$S_M = \sqrt{S^2_M} = \sqrt{0.37} = 0.61$

T-value Calculation

$t = (M - \mu)/S_M = (1.8 - 0)/0.61 = 2.95$

The value of *t* is 2.945942. The value of *p* is .01063. The result is significant at p < .05.

Calculate Reset

***Strikes***

| *t-Test: Paired Two Sample for Means* | | |
|---|---|---|
| | *Variable 1* | *Variable 2* |
| *Mean* | 9.266667 | 10.13333 |
| *Variance* | 3.209524 | 0.980952 |
| *Observations* | 15 | 15 |
| *Pearson Correlation* | 0.340832 | |
| *Hypothesized Mean Difference* | 0 | |
| *df* | 14 | |
| *t Stat* | -1.94411 | |
| *P(T<=t) one-tail* | 0.036129 | |
| *t Critical one-tail* | 1.76131 | |
| *P(T<=t) two-tail* | 0.072258 | |
| *t Critical two-tail* | 2.144787 | |

*Without significant difference*

## T-Test Calculator for 2 Dependent Means

The value of *t* is 2.514474.

*Explanation of results*

The output of this calculator is pretty straightforward. The values of *t* and *p* appear at the bottom of the page. If the text is blue, your result is significant; if it's red, it's not. The only thing that might catch you out is the way that we've rounded the data. The data you see in front of you, apart from the *t* and *p* values, has been rounded to 2 significant figures. However, we did not round when actually calculating the values of *t* and *p*. This means that if you try to calculate these values on the basis of the summary data provided here, you're likely going to end up with a slightly different - and less accurate - result.

| Treatment 1 | Treatment 2 | *Diff* (T2 - T1) | *Dev* (Diff - M) | *Sq. Dev* |
|---|---|---|---|---|
| 9 | 11 | 2 | 1.07 | 1.14 |
| 9 | 11 | 2 | 1.07 | 1.14 |
| 11 | 10 | -1 | -1.93 | 3.74 |
| 11 | 10 | -1 | -1.93 | 3.74 |
| 7 | 10 | 3 | 2.07 | 4.27 |
| 10 | 10 | 0 | -0.93 | 0.87 |
| 10 | 10 | 0 | -0.93 | 0.87 |
| 11 | 11 | 0 | -0.93 | 0.87 |
| 10 | 11 | 1 | 0.07 | 0 |
| 10 | 10 | 0 | -0.93 | 0.87 |
| 9 | 11 | 2 | 1.07 | 1.14 |
| 8 | 9 | 1 | 0.07 | 0 |
| 9 | 9 | 0 | -0.93 | 0.87 |
| 10 | 11 | 1 | 0.07 | 0 |
| 8 | 12 | 4 | 3.07 | 9.4 |
| | | R: 0.93 | | S: 28.93 |

Significance Level:

- ○ 0.01
- ● 0.05
- ○ 0.10

One-tailed or two-tailed hypothesis?:

- ○ One-tailed
- ● Two-tailed

Difference Scores Calculations

*Mean* 0.93
$\mu = 0$
$S^2 = SSdiff = 28.93/(15-1) = 2.07$
$S^2_M = S^2/N = 2.07/15 = 0.14$
$S_M = \sqrt{S^2_M} = \sqrt{0.14} = 0.37$

T-value Calculation

$t = (M - \mu)/S_M = (0.93 - 0)/0.37 = 2.51$

The value of *t* is 2.514474. The value of *p* is .02476. The result is significant at p < .05.

Calculate | Reset

***Stances***

| *t-Test: Paired Two Sample for Means* | | |
|---|---|---|
| | *Variable 1* | *Variable 2* |
| *Mean* | 9.466666667 | 10.4 |
| *Variance* | 1.40952381 | 0.685714 |
| *Observations* | 15 | 15 |
| *Pearson Correlation* | 0.014530955 | |
| *Hypothesized Mean Difference* | 0 | |
| *df* | 14 | |
| *t Stat* | -2.514474228 | |
| *P(T<=t) one-tail* | 0.012382 | |
| *t Critical one-tail* | 1.761310136 | |
| *P(T<=t) two-tail* | 0.024764001 | |
| *t Critical two-tail* | 2.144786688 | |
| *With significant difference* | | |

## T-Test Calculator for 2 Dependent Means

The value of *t* is 1.944107.

*Explanation of results*

The output of this calculator is pretty straightforward. The values of *t* and *p* appear at the bottom of the page. If the text is blue, your result is significant; if it's red, it's not. The only thing that might catch you out is the way that we've rounded the data. The data you see in front of you, apart from the *t* and *p* values, has been rounded to 2 significant figures. However, we did not round when actually calculating the values of *t* and *p*. This means that if you try to calculate these values on the basis of the summary data provided here, you're likely going to end up with a slightly different - and less accurate - result.

| Treatment 1 | Treatment 2 | *Diff* (T2 - T1) | *Dev* (Diff - M) | *Sq. Dev* |
|---|---|---|---|---|
| 10 | 11 | 1 | 0.13 | 0.02 |
| 10 | 10 | 0 | -0.87 | 0.75 |
| 10 | 11 | 1 | 0.13 | 0.02 |
| 10 | 9 | -1 | -1.87 | 3.48 |
| 7 | 10 | 3 | 2.13 | 4.55 |
| 10 | 10 | 0 | -0.87 | 0.75 |
| 11 | 11 | 0 | -0.87 | 0.75 |
| 9 | 9 | 0 | -0.87 | 0.75 |
| 10 | 9 | -1 | -1.87 | 3.48 |
| 9 | 11 | 2 | 1.13 | 1.28 |
| 8 | 9 | 1 | 0.13 | 0.02 |
| 6 | 11 | 5 | 4.13 | 17.08 |
| 6 | 9 | 3 | 2.13 | 4.55 |
| 11 | 10 | -1 | -1.87 | 3.48 |
| 12 | 12 | 0 | -0.87 | 0.75 |
| | | M: 0.87 | | S: 41.73 |

Significance Level:

- ○ 0.01
- ◉ 0.05
- ○ 0.10

One-tailed or two-tailed hypothesis?:

- ○ One-tailed
- ◉ Two-tailed

Difference Scores Calculations

*Mean*: 0.87
$\mu = 0$
$S^2 = SSdif = 41.73/(15-1) = 2.98$
$S^2_M = S^2/N = 2.98/15 = 0.2$
$S_M = \sqrt{S^2_M} = \sqrt{0.2} = 0.45$

T-value Calculation

$t = (M - \mu)/S_M = (0.87 - 0)/0.45 = 1.94$

The value of *t* is 1.944107. The value of *p* is .07226. The result is *not* significant at $p < .05$.

Calculate | Reset