



THE EFFECTIVENESS OF THE SOFTWARE USED FOR THE RESULTS OF STUDY AND ATTITUDES OF STUDENTS AT THE HIGHER EDUCATION DEPARTMENT IN 2021

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ABSTRACT

The objective of this research is to discover the effectiveness of using the SPSS software for the statistical study results of students of the Faculty of Education at Cristal Superior Institute in Dili. This research uses the mixed methodology (quantitative and qualitative) in simultaneous ways. The researcher collected the data through testing and interviews. The results of the study show that there is a significant effect on the use of SPSS learning on descriptive statistical topics the Central trend because of the n-gains value of pre-test media score is 42.05 and the value of post-test media is 77.56 with the value of n-gain is 0,596 or 59,63 severe categories. Thus, the statistical learning and SPSS resources are effective to increase learning outcomes. The results of the interview show that even though statistical learning with SPSS is complex and difficult, the majority of students expressed positive attitudes and interest in learning and using the SPSS software media to analyze data.

INTRODUCTION

Science is important for people's lives and continues to develop according to our thoughts and needs. This evolution occurs on one hand as ambiguity and human curriculum to discover the Environment on both sides and on the other hand is

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sensitivity to adapting to the environment that is changing. Technology and information development are currently underway, in particular, technology development in Education, the area has contributed to facilitating the learning process and addressing its problems. At a very important level of higher education,

Statistics is the application of Science are essential for University students so they understand better and use skills need to help solve problems in the daily life of different sectors. Statistics consider it important to help Science develop principles, methods and procedures research in research (Fong, 2015; Sudijono, 2005). In particular the use of needs as a whole collecting numerical data, conflicting numerical data, numerical data design, numerical data analysis, and conclusion (Brito, 2021; Jayadi & Anwar, 2006).

To meet these needs innovative statistics through some technical instruments. Which can be used in the world Education is the statistical program for Social Science. SPSS is one of the tools used to help analyze Statistics. The SPSS is also considered a program of capacity building a sophisticated statistical analysis that serves and is sufficient to help develop a data management system more easily, especially in the framework of the statistical value calculation if adapted the complex formula (Olufemioladebinu et al., 2018; Machali, 2015).

The SPSS is a software developed by the IBM Company and uses to simplify statistical analysis. At the beginning of its existence 1968. This software was developed to help analyze the data for Social sciences' followed by SPSS to expand its role in other areas, namely economic Science, Sciences exacta Sciences, and Engineering, this helped to present descriptive data.1 especially to help construct tables such as a simple table of urgency and the distribution of graphic frequency of graphics, grams Central measures and calculations of variables of a data. In addition, the SPSS also helps to analyze the Statistics namely the parametric statistical test and non-metric technique test including the hypothetical test (Johnson, 2019).

Statistical Product and Service Solution (SPSS) is a program of applications aimed at analyzing Statistics with computers (Agus, 2014). Therefore, the academic world is very eligible for students to study this tool so that they can use it to analyze their data (Da Costa, 2018) (Gillian, 2012).

Key investigative problems are (1) How effective previously and after using the SPSS software for the statistical study results of students at the Education Faculty at the Cristal higher Institute in Dili? And (2) how can students' attitudes to Education Faculty on Statistic learning experience with SPSS software at the Cristal higher Institute in Dili? The purposes of this research are to analyze the previous effectiveness of using the SPSS software for the statistical studies of students at the Cristal higher Institute in Dili and to explore how students' attitudes Faculty of Education experience Statistic learning with SPSS software at the Cristal Superior Institute of Dili.

METHOD

The population is the joint object or subject with quantity and characteristics determined by the researcher (Brito, 2021; Sugiyono, 2013) while according to Hair et.al., (2006), the population is the group identified by elements such as persons or objects of interest to study or relevant research problems (da Costa et al., 2019; Brito,

2019). Furthermore, Margono (2004) is associated with a population with data. The author says that the population is a set of existing data to determine the location and timing that will be the target of the researcher. In the context of this study, the totality of students from Cristal Superior Institute especially students of the regular school Science semester IV Comprised of six departments the 2021 teaching year is a population of 39 students.

Sampling is one of the small elements of the population that are taken following procedures to represent the population. According to Bulaeng (2004) Sampling is a small group that represents the population provided functional and is a researcher observation target. To define a sample of the population. Arikunto (2006) suggested that if more than 100 of the population we only took a 10- 25 sample, however, if less than 100 it would be involved in the study. The sample purposive is used when a population is less than 100 (Guest et al., 2006).

Based on the theories above the owner concluded that the sample is part of the population that will be observed by researchers. Considering the population of the Faculty of Education Sciences semester IV at the Cristal Superior Institute is less than 100. The population will be a sample. Thus, the sample in this study is 39 persons.

Concerning the qualitative approach, five student researchers were selected with the sampling technique (purposive sampling). The key informants are defined by the researcher and conservation of active involvement in the learning process as well as provision of information on experience according to Statistics class. This research uses a methodology that combines quantitative and qualitative methodology in simultaneous ways. Adapted techniques to obtain data are the application of written records tests and observation in the classroom. Research data are quantitative and qualitative data. This data will be analyzed through the use of said data such as a normal test of discretion and a hypothetical test. The test hypothesis is as follows:

Test - t

If data and normal distribution continue to be tested - one sample t. (Paired sample t-test). The paired sample t-test is a comparative statistical technique used to see two-variable average value differences in the same sample as the technical form of simple, to see media differences between one sample, pre and after receiving treatment (Brito, 2019). To identify differences there will be similar criteria:

If the p-value (value sig. In output SPSS) < 5% (significant level) So there is a significant difference in the results of the student study before and after using the SPSS application.

If p-value (value sig. In output SPSS) > 5% (significant level) So there was no difference in the results of the study prior and the used SPSS application

When the results of the test t show a significant difference, the following sips will be used to see effectiveness before and then using the SPSS application in the learning process.

Normalizing Gain (n-gain)

A formalized test is the continuation test to define learning effectiveness with the use of SPSS software. According to this (1999), the formula for standardizing the Gain scores was as follows

$$N\text{ Gain} = \frac{\text{skore pós test} - \text{pré test}}{\text{skore ideal} - \text{skore pré test}} \quad (\text{Hake, 1999})$$

Observation the ideal score is the highest obtained. Classification of the value of normalizing Gain (n-gain) according to the interpretation is observed in table 1.

Table 1 interpreted the value of n-gain.

value	Interpreted
(N-gain) \geq 0,7	Greater
0,7 > (N-gain) \geq 0,3	Sufficient
(N-gain) < 0,3	The smallest.

Source: Hake (1999)

Hake (1999), defining the category of value n-gain has a percentage of interpreting the effective degree of learning activities as observed in table 2.

Table 2 category of effective interpretation.

Percentage (%)	Interpretation
<40	Ineffective
40-55,99	Less effective
56-75	Effective
>75	Effective.

Source: Hake (1999)

RESULTS AND DISCUSSION

Analyses of the Quantitative Results of Testing. The data on the student learning results in this study was obtained by students through the first test (pre-tested-up) which was carried out during the learning process. Normality Analysis Test. The result of the analysis of normality tests was as follows

Table 3 results analysis of normality tests.

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Posttest	.175	39	.004	.951	39	.090
Pretest	.145	39	.037	.938	39	.033

a. Lilliefors Significance Correction

Source: output results analysis normality of 2021.

From table 1.3 the significant value of value pre-test no post-test > 0, 05 (0, 90 > 0, 05) so accept it H0. Therefore, the data was concluded that the pre-testing value and the test well were obtained with normal distribution. It is also worth pre-test no post-test, significant > 0, 05 (0, 33 > 0, 05), so received H0 that data is pre-test and post-test with normal distribution.

Analyzing the Results of Descriptive Test. The result of the analysis of the results of the descriptive test was as follows.

Table 4 result of discretion analysis Statistics.

Statistics			
		pre-test	post-test
N	Valid	39	39
	Missing	0	0
Mean		42.05	77.56

Std. Error of Mean	1.959	1.808
Median	40.00	80.00
Mode	30	80
Std. Deviation	12.232	11.290
Variance	149.629	127.463
Range	50	45
Minimum	20	50
Maximum	70	95
Sum	1640	3025

Source: output analysis pre-test and posttest, 2021.

The output variable pretest and posttest well above show a total sample of 39 persons. The average value from a variable test is 42, 05; the standard deviation is 12,232; the minimum score from the variable pretest is 20 and the value of the maximum pre test is 70. Then the average value (mean) from the variable post test is 77, 56; the Standard deviation (standard deviation) 11,290; the minimum score from the variable post test is 50 and the value of maximum post-tests is 95. Sampling Analysis of Test.

Table 5 analyses sample of sampling samples in text

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretested	42.05	39	12.232	1.959
	posttest	77.56	39	11.290	1.808

Sources of output analysis of sampling t tested in 2021.

Table 5 presents the value of Paired Samples Statistics In particular the average value of the student pre-test exam results is 42, 05 and post-test is 77, 56 Value of pre-test students with a standard deviation of 12,232 and post-test is 11,290 while the average standard errors are 1,959 and 1,808. A total of 39 students were observed. From data show us that the media value Post-test is higher than the pre-test value.

Table 6 results analysis of correlation sampling correlations as likely as possible.

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pretested & posttest	39	.123	.456

Source of output analysis sampling correlations, 2021.

Table 6 describes the correlation between pre-test and post-test data indicating there is no correlation between the two data groups (there is a weak relationship between the Ministry of Finance). Coefficiencies are 0,123 with significant factors 0,456

Table 7 results analysis test differences sampling text severe text Paired Samples Test

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	preteste - posttest	-35.513	15.593	2.497	-40.568	-30.458	-14.223	38	.000

Source of output results analysis test "Paired Samples Test" 2021.

Table 7 Paired Samples Test Present the results of test differences between the values of pre-teste and post-test. Because of values $t_{emp.} > t_{table}$ ($14.223 > 2,024$) and P-value ($0,000 < 0,05$) Is revenue with H_0 and accept H_1 . This means that there is a difference between student values before applying SPSS software at the student final test value after using SPSS software. The results show that the average results of the final test are then applying the large or better software before applying the method.

Analysis of the Results of Test N-Gain.

Table 8 value result from Normalized Gain pre-testing and Post testing

No	Value		category						
	Pre-test	Post-test	a(post-test)	b(10-pre)	N-Gain	N-Gain %	$\geq 0,7$ (Tall)	$0,3 \leq G < 0,7$ (Currently)	$G < 0,3$ (small)
1	40	55	15	60	0.25	25			√
2	30	80	50	70	0.71	71,43	√		
3	30	70	40	70	0.57	57,14		√	
4	40	95	55	60	0.92	91,67	√		
5	50	60	10	50	0.2	20			√
6	30	60	30	70	0.43	42,86		√	
7	40	85	45	60	0.75	75	√		
8	60	80	20	40	0.5	50		√	
9	70	80	10	30	0.33	33,33			√
10	55	70	15	45	0.33	33,33			√
11	50	70	20	50	0.4	40		√	
12	65	75	10	35	0.29	28,57		√	
13	70	80	10	30	0.33	33,33			√
14	40	85	45	60	0.75	75	√		
15	35	75	40	65	0.62	61,54		√	
16	25	90	65	75	0.87	86,67	√		
17	35	70	35	65	0.54	53,85		√	
18	40	90	50	60	0.83	83,33	√		
19	60	85	25	40	0.63	62,5		√	
20	50	90	40	50	0.8	80	√		

21	30	85	55	70	0.79	78,57	√		
22	50	75	25	50	0.5	50		√	
23	45	60	15	55	0.27	27,27			√
24	45	80	35	55	0.64	63,64		√	
25	30	80	50	70	0.71	71,43	√		
26	40	70	30	60	0.5	50		√	
27	50	95	45	50	0.9	90	√		
28	45	65	20	55	0.36	36,36		√	
29	30	80	50	70	0.71	71,43	√		
30	30	50	20	70	0.29	28,57			√
31	45	80	35	55	0.64	63,64		√	
32	45	95	50	55	0.91	90,91	√		
33	40	95	55	60	0.92	91,67	√		
34	30	80	50	70	0.71	71,43	√		
35	50	85	35	50	0.7	70	√		
36	20	70	50	80	0.63	62,5		√	
37	30	70	40	70	0.57	57,14		√	
38	30	80	50	70	0.71	71,43	√		
39	40	85	45	60	0.75	75	√		
sum mati on	1640	3025			23.26	2325,54			
Aver age	42.0 51	77.564			0.596	59,63			
Tall	Kuant.Tall/39x100% = 17/39x100% = 43,59%								
Currently	Kuant.Currently/39x100% = 15/39x100% = 38,46%								
Small	Kuant.Small/39x100% = 7/39x100%=17,95%								

Source for the preparation of researcher, 2021.

According to table 8, the calculation of the results of the n.1.1 shows that the average value of pre-test is 42.05 and the post-test media value of 77.56 with n-gain 0.596 value falling into sufficient or 59,633 severe categories of effective. In this way, the 228 concluded that the use of SPSS software is an effective tool to increase the student study results

Qualitative Results Analysis Interview

Results of analysis category of thematic data for five students' experience, which follows conventional statistical classrooms and SPSS software. The following table presents thematic categories in the process of analysis of the content of interviews.

Table 9. Analysis of results of the interview.

	Sub Category	Registration Unit
	Negative	The difficulty was the first-time using SPSS software was scary (E3, 22 years)
Affective	Positive	I am very proud to be able to learn SPSS software so I

(Feeling)		can use data analysis (E1, 22 years).
		According to my opinion, The software SPSS is good because it can help us (analysis) data available quickly. (E5,23 years)
	Help analyze data quickly.	I think that using the SPSS software is better because it can help us analyze the data quickly. (E1, 22 Years) Help us analyze data because using the software is easier than this manual. (E5, 23 Years)
	Help process data quickly.	The use of SPSS software is good because it can help us (make)Data processing is therefore we do not calculate with the manual that needs time (E4, 23 Years)
Use/ Benefit	Help surveyor data closing	I think that using the SPSS software is good because the researcher and research is easily ensured. (E2, 23Years)
	Help analyze data and disseminate data.	I think that using SPSS software is good because it can quickly analyze data and help the researcher to enslave data. (E3,22 Years).
	Minimize errors by collecting data with a large number.	Without learning SPSS software, data analysis with Manuel or accounts alone is also wrong because the most common number. (E1,22 Years)
Interest Students.	Interest study SPSS.	I care (learn Because SPSS software can help me analyze the data. (E1,22 Years) I love studying processing. (analyze) Data and Use SPSS software. (E2, 23 years) I am interested because (SPSS) can help data processing quickly. (E5, 25 years) I am studying software with interest. (SPSS) as we can analyze data and disseminate data quickly. (E3, 22 years). I love studying SPSS software as we can analyze data quickly (E4,23 years).
	weakness technology	The difficulties we face are the failure of software and equipment because the software capacity is difficult to install facilities in low-capacity computers or laptops. (E2,23 years) The difficulties we face. (is) Our laptop cannot (accept) software is the capacity of the larger software. (E4, 23 years). My feelings are very difficult in the process (operation) But it is easy for us to control what we learn (E2,23 years).

difficulty	Complexity operation	Masker is difficult but if you want to study under the control of SPSS software it is easy to analyze data quickly (E4, 23 years). I am very difficult, but if you want to study and learn the SPSS software is very easy. (E5, 25 years)
suggestion	Improving methodology	I suggest to the teacher when teaching the subject using SPSS software, then teach slowly so I can better understand it. (E1, 22 years)
	Improving conditions and strategies.	The suggestion is that we now have new technology we need to prepare space and make good strategies. (E2, 23 years) My suggestion. (increase) When practitioners and computers are selected in daric conditions and can install SPSS software. (E5, 25 years)
	spread SPSS	I only suggest that in the future it should also apply SPSS software for the Department. (other) Which is the program for Statistics issues applied. (E4, 23 years)
	Improving practice	According to my opinion, I was only to suggest that further practice should be undertaken. You can't sell it because through this we can enslave it quickly (E3, 22 years).

Source of analysis of results of interview 2021.

From the views of interviews on statistical learning tips and SPSS researcher concluded that in the future should apply SPSS software for the Department program of Statistics and should be practically undertaken through the better improvement of facilities and equipment. Including improved teaching methods and strategies.

Discussion

Based on the analysis of the results in this section try to have a profound discussion on the study.1 which focuses on research issues. The first issue was the connectivity evolving software SPSS bares a result of the statistical study of the storms and the second was the student's magnitude in the learning Statistics and media learning SPSS.

Concerning the first issue, the findings of the study show that there are significant effects on the use of the media SPSS learning the topic of discretionary Statistics ". Central trends measures". The results show that there is a significant difference in the value of the statistical test of students before and after using SPSS in the learning process for Statistics. In this way, the statistical learning and SPSS resources are very effective to raise learning results. These results are also aligned with previous studies such as Nurhayati and Novianti (2020). Author Moore (1997) and Gordon no Gordon (1992) reinforce that the use of learning technology and adequate methods will improve student Statistics learning. This phenomenon is due to SPSS in addition to helping students to learn the theory of Statistics. (Moriss, 2013).

Relative to the second question, findings indicate that even though statistical learning with SPSS is complicated and difficult (Coetzee, & Vander Merwe, 2010)

However most students expressed positive attitudes and interest in learning and using SPSS learning media to analyze data (Nurhayati & Novianti, 2020).

Attitudes positive and interest in learning Statistics with SPSS tools appear to be a factor of utility software, especially insure and analysis of data efficiently and effectively. The result was aligned with the study. Hayim no Listiawan (2014) That SPSS helps to process statistical data more rapidly and credible. . Zul Anwar (2017) Highlights that the sip tools help the statistical learning process and then improve the statistical data analysis skills. Some assailants (Clark & Mayer, 2008; Searson & Dunn, 2001) Add that the use of student learning media increases their performance in the study.

In General, we conclude that the results of the study show that the use of SPSS learning media in the process of extracting material can improve study attitudes and then have significant effects on the results of the study, specifically contributing to the improvement of student learning outcomes.

Study Matheus and Musondo (2018) this reality is compatible. Coetzee and Vander Merwe, (2010) Sustained that students' attitudes towards Statistics can influence their interests and exam results.

CONCLUSION

The results of the study show that there is a significant effect on the use of SPSS learning on descriptive statistical topics "the Central trend is because of the n-gains value of pre-test media is 42.05 and the value of post-test media is 77.56 with the value of n-gain is 0,596 or 59,63 severe categories. Thus, the statistical learning and SPSS resources are effective to increase learning outcomes. The results of the interview show that even though statistical learning with SPSS is complex and difficult, the majority of students expressed positive attitudes and interest in learning and using the SPSS software media to analyze data. Positive attitudes are evident because they recognize the usefulness and advantages of learning media.

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