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THE EFFECT OF THE USE OF MOBILE COMMUNICATION DEVICES ON STUDENT LEARNING OUTCOMES

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Keywords
Communication Tools, Mobile Phones, Learning Outcomes

Abstract
The results of the study prove that the effect of the use of mobile phone communication devices on the learning outcomes of students in the subject of moral beliefs at Madrasah Aliyah in Banggai Regency was obtained by testing the hypothesis between variable X (mobile phone use) and variable Y (learning outcomes) where each variable was tested with its validity and reliability. The data obtained was then analyzed using the Simple Linear Regression equation. The model of a simple linear regression equation produced is learning outcomes (Y) = 71.242 which means that the compensation variable (X) has a positive influence on the dependent variable of learning outcomes (Y) the value of the correlation coefficient (Multiple R), showing that compensation will cause a positive increase in learning outcomes. The value of the determination coefficient (R. Square) shows that the change in compensation will affect learning outcomes The value of the variable value of mobile phone use (X) is greater than the ttable. The value of sig. t is less than 0.05. These results show that partially the variable of Mobile Phone Use has a significant influence on the variable of Learning Outcomes.

Kata kunci
Alat Komunikasi, Handphone, Hasil Belajar

Abstrak
Hasil penelitian membuktikan bahwa pengaruh penggunaan alat komunikasi handphone terhadap hasil belajar peserta didik pada mata pelajaran akidah akhlak di Madrasah Aliyah di Kabupaten Banggai hasil ini didapatkan pengujian hipotesis antara variabel X (penggunaan handphone) dengan variabel Y (hasil belajar) yang masing-masing variabel diuji dengan validitas dan reabilitasnya. Data yang diperoleh kemudian di analisis menggunakan persamaan Regresi Linear Sederhana. Model persamaan regresi linear sederhana yang dihasilkan adalah hasil belajar (Y) = 71.242 yang berarti menunjukan bahwa variabel kompensasi (X) memiliki arah pengaruh positif terhadap variebal dependen hasil belajar (Y) nilai koefisien korelasi (Multiple R), menunjukan bahwa kompensasi akan menyebabkan peningkatan yang positif terhadap hasil belajar. Adapun nilai koefisien determinasi (R. Square) menunjukkan bahwa perubahan kompensasi akan mempengaruhi hasil belajar Nilai t_{hitung} variabel penggunaan handphone (X) t_{hitung} lebih besar dari t_{tabel}.

Adapun nilai sig. t lebih kecil dari 0,05. Hasil ini menunjukkan bahwa secara parsial variabel Penggunaan Handphone memiliki pengaruh signifikan terhadap variabel Hasil Belajar.

Introduction

As social beings, humans always want to be in contact with other humans. He wants to know the surrounding environment, and even wants to know what is happening inside him. This curiosity forces humans to need to communicate. In social life, people who never communicate with others will be isolated from their society. This isolated influence will lead to mental depression that ultimately leads to people losing their mental balance. Therefore, according to Kleinjan, communication is as much an eternal part of human life as it is breathing. As long as humans want to live, they need to communicate. Therefore, many experts consider that communication is a very fundamental need for a person in social life.

The development of information and communication technology has been so rapid that without us realizing it, it has affected every aspect of human life. Nowadays, technology products have become a daily necessity in carrying out life activities. The use of televisions, fax phones, *cell phones,* and the internet is no longer a strange or new thing, especially in big cities.[1]

It is undeniable that information and communication technology is the spearhead in the era of globalization that is now hitting almost all over the world. This condition has led to the birth of a new world that is often referred to as a global hamlet where citizens are inhabited by so-called network citizens.[2]

The same thing was stated by Mansur as quoted by Liliweri, saying that giving birth to a reality in the third dimension, if the first dimension is hard reality in empirical life (commonly called hard reality), the second dimension is reality in symbolic life and the values that are formed (matched with the term soft reality) with the third dimension known as virtual reality which gives birth to another social format.[3]

Telecommunications is divided into two main divisional elements, namely:

1. Radio and television are mainly used for audio and video broadcasting, but are now also used to communicate computer data for example through satellite connections.
2. Telephone networks were originally intended for voice communication but are now also used to send computer data, texts, for example via telex and imagery using for example faximile.[4]

[1] W. A. Widjaja, *Communication and Public Relations* (Jakarta: Bumi Aksara, 1993), 4

[2] Aziz, Asep Abdul, el al. (2020)., Education Policy Analysis Model, *Tapis: Journal of Scientific Research* Vol. 4, No. 2, December 2020, Sunan Gunung Djati State Islamic University Bandung, Indonesia

[3] Alo Liliweri, *Theoretical Perspective of Interpersonal Communication* (Bandung: PT. Citra Aditya Bakti, 1991), 12-13.

[4] Ibid.,

A mobile phone is an electronic telecommunication device that has basic conventional capabilities that are easy to carry and do not need to be connected to a telephone network that uses cables. Mobile phones have become a very important and easy communication tool, both the hardware *(handware)* in the form of telephone aircraft and software *in* the form of chips and pulses.[5] With the rapid development of communication technology, mobile phones (mobile phones) have various functions in addition to receiving calls or SMS (short messages), mobile phones can also function as a tool for taking pictures, recording all activities, as a means of information and even the mobile phone can be used to explore the internet world depending on the features of the mobile phone. As a means of communication,

For the field of education, the advancement of communication technology has opened up a wide range of opportunities for community members to gain opportunities to improve their respective knowledge. Communication technology allows people to learn without being bound by distance and time, as is known as *the distance learning* system.[6] In addition, it also helps to overcome the lack of teaching staff and the competitiveness of formal schools with the system (*open learning*). As well as other forms of learning activities, both formal and non-formal.

However, with technological advances, not only positive impacts are produced, but also many negative impacts from technology are also problems in their daily lives, especially for students. For example, for children who are still active in school or students, we often meet them using mobile phones, not a few teachers find students carrying or playing with mobile phones during lessons.

Not a few students experience drowsiness, weakness, dizziness, and lack of concentration during school due to sleeping too late because of playing their cellphones. In addition, many also do not do the assignments given by the teacher. In addition, we often find students who often skip school and sit with their friends at coffee shops that provide internet services and play online games on their phones.

These things will make students aware of their obligations as students and will make students addicted to playing mobile phones and missing lessons delivered by teachers during lessons at school which will affect their learning achievement.

Method

Population and Research Sample

1. Populasi

Sugiyono defines population as, "Generalized areas consisting of objects/subjects have certain qualities and characteristics that are determined by the researcher to be

[5] Hanafi, Ivan and Ma'sum, Mufti. (2015). Analysis of Education Policy Implementation: The Role of School Committees in Vocational High Schools, *Education Horizon,* February 2015, Th. XXXIV, No. 1.

[6]Bachtiar, Y. (In press). Resistance of Indonesian Human Character Building in the Digital Era. *Journal of Basic Education.*

studied and conclusions drawn.[7] The whole subject of the research if one wants to research all the elements in the research, then the research is a population research for example, all students who are registered take a certain course.[8] According to this understanding, it can be concluded that population is a number of research units that are studied as a whole, both in the form of humans and symptoms or events that occur and are related. The population in this study is all students of class XI consisting of 5 classes.

2. Research Sample

Sampling is a data collection procedure in which only a part of the population is taken and used to determine the desired traits and characteristics of a population.[9] Samples are used as research materials in the hope that samples taken from the population can be representative of the population. The sampling technique used in this study is *the simple random sampling* technique, which is sampling that is carried out randomly without paying attention to the strata in the population.[10] Regarding the number of samples taken in the study, according to Suharismi Arikunto, if the research subjects are less than 100 people, it is better to take all of them and if the subjects are large, they can be taken between 10-15% or 20-25% or more.[11]

Thus, the sample in this study is students, especially class XI. To determine the number of samples required, the Slovin formula can be used.[12] Namely:

$$n = \frac{N}{1 + N\,(e)^2}$$

Remarks :
n = Sample size
N = Population size
e = Percent of leeway inaccuracy due to errors in population sampling 10 %.

If the population (N) = 100 with a sampling error rate (e) of 10%, then the sample is

$$n = \frac{100}{1+100\,(0{,}1)^2}$$
$$n = \frac{100}{1+100\,(0{,}01)}$$
$$n = \frac{100}{1+1}$$
$$n = \frac{100}{2}$$
$$n = 50$$

Thus, the number of samples to be studied in this study is 50 respondents.

[7]Sugiyono, *Qualitative Quantitative Research Methods and R&D* (Cet, XVII: Bandung: CV, Alfabeta, 2012), 80.

[8]Suharsimi Arikunto, *Qualitative Quantitative Research Methods and R&D* (Cet, XVII: Bandung: CV, Alfabeta, 2012), 80.*Research Procedures of a Practical Approach*, (Cet., XIII: Jakarta: Rineka Cipta, 2006), 130

[9]Sugiyono, *Method*, 110

[10]Ibid.,

[11]Suharisme Arikunto, *Research Procedures of an Approach to Practice Revised Edition V,* (Jakarta: Rineka Cipta, 1993), 112

[12]Sugiyono, *Method*, 110

Research Variables

Sugiyono, said that research variables in quantitative research can be divided into two types, [13] namely.

1. Independent variable (independent variable)

An independent variable is a variable that affects or is the cause of its change or the emergence of dependent variables. The independent variable (X) in this study is *Mobile Phone Usage.*

2. Dependent variables

Bound variables are variables that are affected or that are the result of the existence of independent variables. The bound variable (Y) in this study is *Learning Outcomes.*

Results and Discussion

Based on the results of the research conducted, the author has collected data on the use of mobile phones through the internet in improving student learning outcomes. One of them is based on the results of the questionnaire that the author gave to 50 respondents, in this case students at one of the Aliyah Madrasah in Banggai Regency, more details can be found in the following table

Table 1
The Use of Mobile Communication Tools Through Internet Applications for Students as a Learning Resource

No.	Category	Frequency	Presentation
1.	Strongly agree	272	544
2.	Agree	443	788
3.	Somewhat disagree	173	346
4.	Disagree	35	56
5.	Strongly Disagree	0	0

The data presented in this study, obtained from questionnaires and also documentation of learning outcomes, can be seen from the daily assignment scores of grade XI students of the Moral Faith subject at one of the Aliyah Madrasah in Banggai Regency for the 2024-2025 school year. The variables in this study are the use of mobile phones (which are notated X) which is an independent variable, while learning outcomes (which are notated Y) which are bound variables. Before presenting the results of the influence of hypothesis testing, an overview of the students' learning outcomes will be presented from the test scores at the end of class X in the subject of Moral Faith for the 2024-2025 school year.

Table 2
Final Exam Scores for Class XI Students

No	Name	Gender	Value
1	Zakia	Women	91
2	Adam	Male	88
3	indah	Women	90
4	Hasmiah	Women	89
5	Husen	Male	90

[13]Ibid, 61.

6	Kamila	Women	94
7	Fifi	Women	92
8	Rahma	Women	84
9	Taufik	Male	89
10	Risma	Women	91
11	Alam	Male	90
12	Ningsih	Women	84
13	Latif	Male	83
14	Jamiri	Male	94
15	Irfan	Male	89
16	Najwah	Women	57
17	Nurul	Women	92
18	Anita	Women	94
19	Lilis	Women	84
20	Thaharah	Women	63
21	Fadliah	Women	87
22	Afifah	Women	93
23	Sukri	Male	80
24	Salsa	Women	94
25	Daffa	Male	91
26	Nunung	Women	90
27	Hasan	Laki-laki	97
28	Kartika Sari	Women	88
29	Moh . Nur	Male	90
30	Salamah	Women	84
31	Reza	Male	93
32	Arni	Women	88
33	Safiah	Women	93
34	Nurunisa	Women	81
35	Amanda	Women	92
36	Qolbiah	Women	98
37	Awaluddin	Male	89
3	Ayu Anjani	Women	99
39	Fadila	Women	97
40	Fira	Women	96
41	Zlatan	Male	81
42	Dadang	Male	89
43	Saloge	Male	90
44	Fiali	Women	86
45	Ulil	Male	87
46	Azzam	Male	91
47	Moh. Nur	Male	86
48	Asma	Women	92
49	Sabila	Women	89
50	Salwah	Women	95

Table 3
Learning Outcomes of Class XI Students

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Learning Achievement	50	57	99	80,86	7,265	52,776
Valid N (listwise)	50					

From the table above, it shows that the learning outcomes of class XI students at Madrasah Aliyah in the Regency with the number of respondents (N) 50, which is the lowest score of 57, the highest score of 99. And the average score was 80.86 with a standard deviation of 7.265. It can be concluded that the value of learning outcomes of grade XI students, in the subject of Moral Faith in the medium level of 57 the lowest score and the highest 99 score, refers to the norm of measuring the success of grade XI students.

Test Results of Research Instruments

1. Validity Test

The statements expressed in the questionnaire concern the use, sample of each variable measured using the Likert scale. The validity of the items in the questionnaire can be determined by comparing the *Corrected item-Total Correlation* value of all statements submitted with a critical r-value according to the criterion of 0.3.[14]

The validity testing of the questionnaire used in this study was carried out using the help of *SPSS 21* and the results can be seen in the following table.

Table 4
Results of Reliability Testing of Research Instruments

NO	Variable	Number of statement items	Cronbach's alpha	Remarks
1	Mobile phone use (X)	20	0,829	Reliability

Cronbach's Alpa *value* in the table above shows that the variable of mobile phone use has a value above 0.6. This means that the questionnaires used in the collection of research data have good reliability. The results of this test mean that the questionnaire used in this study is reliable and feasible to be used in data collection.

1. Classical Assumption Test Results

The classical assumption test is carried out with the intention of evaluating the simple regression model used so that it can produce an ideal value. The equations that

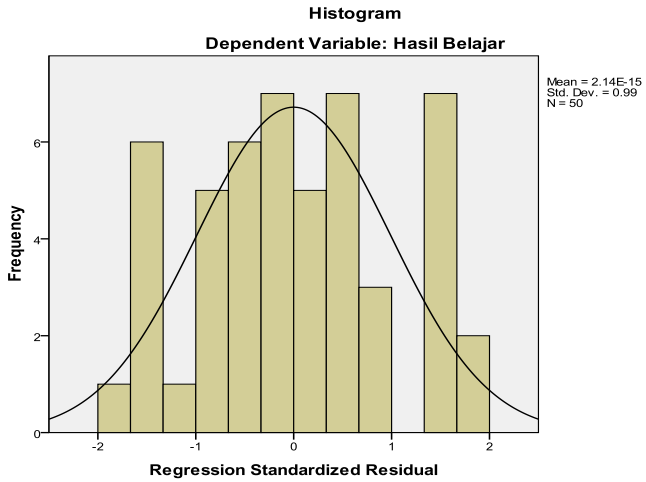
[14]Sugiyono, *Statistika Untuk Penelitian,* (Cet .20, Bandung : Alfabeta, 2014) 179

will be carried out are the classical assumption test consists of a normality test, and a heterokedasticity test, each of which is described as follows:

a. Normality test

The normality test aims to find out whether the dependent variable, independent variable, or both, observed in a regression model has a normal distribution or not. A good regression model is to have a normal or near-normal distribution of data. In the normality test, a histogram graph as well as a normal graph *of P-P Plot Of Regression Standardized Residual* and non-parametric Kolmogorov-Smirnov were used which displayed the distribution of points (data) on the diagonal axis in the graph.

The results of the normality test analysis using *the SPSS 18* program can be seen in the histogram graph as follows :



Gambar. 1

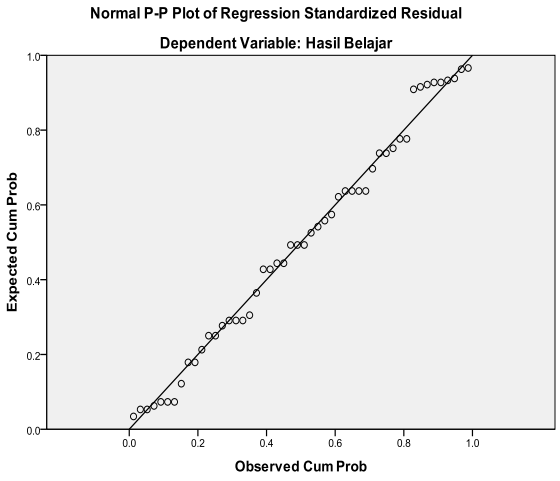


Image. 2

The histrogram above the normality test is based on the graph in figure 1, which is the shape of the normal curve and most of the bars are below the curve, then the variables are normally distributed. The two figures above show that the data of this study has met the classical assumption, namely the normality of the data shown in figure 2, where the points of convergence of the graph form a normal curve. The second reason is

that in figure 2 it appears that the data is not too spread and follows the direction of the diagonal line, so this research data is assumed to be normally distributed. Another statistical test that can be used to test normality is to use the Kolmogorov-Smirnov (K-S) non-parametric statistical test. The results of the Kolmogorov-Smirnov test with *a Level of Significant* of 0.05 using *SPSS 21* can be seen in the table below:

Table 5
Kolmogorov-Smirnov Test Results (K-S)
One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		50
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	3,50478023
Most Extreme Differences	Absolute	,122
	Positive	,104
	Negative	-,122
Kolmogorov-Smirnov Z		,865
Asymp. Sig. (2-tailed)		,443

a. Test distribution is Normal.

b. Calculated from data.

From the table above, it shows that the Kolmogorov-Smirnov value is divided into probability numbers or *Asymp. Sig (2-tailed)* above 0.799 > 0.05= 5% It can be concluded that from the two variables above, the data is distributed normally.[15] So, it can be said that the normality requirements can be met so that the data can be used in the future.

1. Heteroscedasticity Test

The heteroscedasticity test aims to test whether in a regression model there is an unevenness *of variance* from residual from one observation to another. If the *variance* from the residual of one observation to another observation is constant, it is called homogeneity, while if the *variance* from the residual of one observation to another is different, it is called heteroscedasticity[16]. To test this assumption, it is done by looking at a *scaterplot graph* between the predictive value of the bound variable (ZPRED) and the independent variable (SRESID) with its residual". The results of the heteroscedasticity test in this study using the help of *the SPSS 21* program can be seen in the figure below:

[15]Agus Widarjono, *Applied Statistics with Excel and SPSS.* (Yogyakarta: UPP STIM YKPN 2015)221

[16]Ibid, 291.

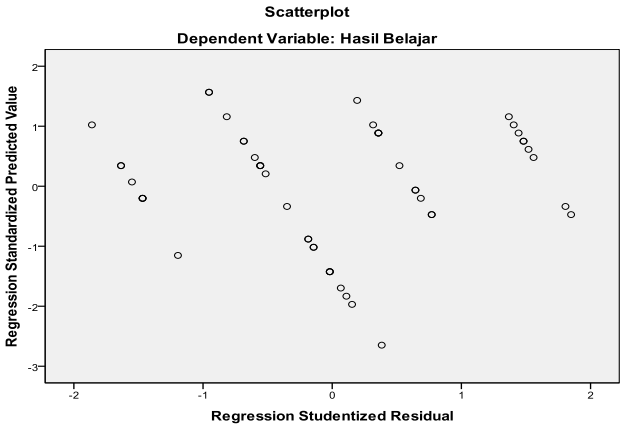


Image. 3
Scatterplot

In the image above, it can be seen that there is no clear pattern of spread (wavy, widening, then narrowing), and the point of spread is above and below the number 0 on the Y axis.

b. Data Analysis Results

1) Simple Linear Regression Test

In the previous chapter, it has been mentioned that this study aims to find out the magnitude simultaneously and precisely, and also to see how much the use of mobile phones (X) affects Learning Outcomes (Y).

The results of the analysis using the help of *SPSS 21* can be seen as the results of simple linear regression analysis in the following table:

Table 6

Results of Simple Linear Regression Analysis and Coefficient Determination Test (R^2)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	71.242	7.546		9.442	0.000
	Mobile Phone Use Through Internet Applications	0,192	0.091	0.291	2.110	0.040

Multipe R	= 0,291[a]	F_{hitung}	= 4.451
R Square	= 0,085	F_{tabel}	= 3.18
Adjusted R Square	= 0,066	t_{tabel}	= 1.675
α	= 0,05	sig.F	= 0,000

Based on the table above, the model of the Simple linear regression equation in this study is as follows:

$$Y= a + BX$$

$$Y = 71.242 + 0.192 X$$

The regression equation above provides an overview of the magnitude of the influence of the free variable on the related variable. Where from the coefficient of X (Influence of Mobile Phone Use) marked (+) shows that the influence of the free variable (X) with the related variable Y (Learning Outcome).

Berikut penjelasan hasil perhitungan dari nilai-nilai pada tabel yakni sebagai berikut :

a) The value of constant (a) of 71,242 indicates that the variable of the Influence of Mobile Phone Use (X) is assumed to remain fixed or unchanged, then the Student Learning Outcomes, which are generated are valued at 71,242 and are marked Positive. This means that the learning outcomes of students will increase by 71,242.
b) The value of the regression coefficient of the Effect of Mobile Phone Use variable (X) of 0.192 means that the variable Effect of Mobile Phone Use has a positive effect on the variable of Student Learning Outcomes. The effect was 19.2%.

2) Correlation Test of Determination Coefficient.

The determination coefficient (R2) test is a test that aims to measure how far the ability of the independent variable model explains the variance of changes in dependent variables. The value of the correlation coefficient of determination (R2) has an interval of 0 to 1, if the value of R2 is close to 0 it means that the ability of independent variables to explain the variance of changes in dependent variables is very limited, and if the value of R2 is close to 1 it means that independent variables provide almost all the information needed to predict the variance of changes in dependent variables.[17]

The fundamental disadvantage of using the determination coefficient (R2) is that it can affect the number of independent variables that are entered. Therefore, in this study, *adjusted* R2 will be used ranging from 0 to 1. If *the adjusted* value of R2 is closer to 1, then the better the model's ability to explain independent variables to dependent variables. The results of the determination coefficient test can be seen in the *adjusted* R *square column,* which is shown in the following table.

Tabel 7
Determination Coefficient Test Results (R^2)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,291[a]	0,085	0,066	4.692

[17]Ibid, 266.

The magnitude of the coefficient value (R2) can be seen in the R column. *Square*, where the value contributed 0.085 or 8.5%. These results show that independent contributing variables are predicting the variance of changes in dependent variables by 8.5%. Meanwhile, the remaining 95% is explained by other variables that are not included in the regression model of this study.

Based on the table above, it shows that the value of the determination coefficient in the *adjusted* R *square* column (*adjusted* R2) is 0.085 or 8.5%. The results show that the dependent variable, namely learning outcomes (Y) which can be explained simultaneously or simultaneously by the independent variable, namely the influence of mobile phone use, is 8.5%. While the remaining 95% is another variable that was not studied in this study that can affect learning outcomes.

The value of the correlation coefficient (R) is 0.291a or 29.1% which means that it is close to 1. Thus, these results show that overall independent variables have a moderate relationship with dependent variables. Also, *the Standard Error of Estimate* (SEE) is 4,692. These results show that, the smaller *the SEE* value, the more accurate the regression model will be in predicting dependent variables.

2. *Results of Data Analysis and Hypothesis Testing*

a. F Test (Simultaneous Influence Test)

To measure the influence simultaneously (Mobile Phone Use) on dependent variables (Learning Outcomes), the resulting F test will compare Fcal with Ftabel.

Based on the results of the ANOVA Test (*Analysis of Variance I*), the Fcal value was obtained at 4,451 while Ftable. At a confidence level of 95% ($\alpha = 0.05$) of 3.18 and a significant difference of 5% ($0.040 < 0.05$) so that the results provide a meaning that the use of mobile phones (X) has a significant effect on learning outcomes (Y).

Thus, the first hypothesis that states that simultaneously variable X (Mobile Phone Use) has a significant effect on variable Y (Learning Outcomes) is acceptable.

b. T Test (Partial Influence Test)

To be able to measure the partial influence of each independent variable on the dependent variable, a t-test is used, the results of which will compare the calculated value with the ttables. Based on the results of *the coefficiants test*, it can be interpreted that the results of the t-test of independent variables are as follows:

The effect of the variable of mobile phone use (X) on learning outcomes (Y) The value of the calculation of the variable of mobile phone use (X) is 2.110 while the value of the table at the confidence level of 95% ($\alpha = 0.05$) is 1.675 so that the calculation> ttable. And the significance level is smaller than the level of distrust of 5% (0.040<0.05) so the second hypothesis can provide a meaning that partially the variable of mobile phone use has a significant influence on learning outcomes.

Conclusion

Based on the results of the research, it can be concluded in this study as follows:

1. The use of mobile communication tools in the subject of moral beliefs is very influential and has a positive relationship and will indirectly cause a great increase in Learning Outcomes.
2. The use of mobile communication tools in the subject of moral beliefs has a positive relationship and has a significant effect on student learning outcomes. The use of mobile phones (X) is greater than the table. The value of sig. t is less

than 0.05. These results show that partially the variable of Mobile Phone Use has a significant influence on the variable of Learning Outcomes.

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