

Does Smartphone Use, Ruangguru Application, and Learning Motivation Affect Learning Achievement in Economic Subjects?

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ABSTRACT

The objectives of this research were to find out: (1) The influence of Smartphone students' Learning Achievement of Economic Subjects; (2) The influence of Ruangguru Application on students' Learning Achievement of Economic Subjects; (3) the influence of Learning Motivation on students' Learning Achievement of Economic Subjects; and (4) The influence of using a Smartphone, Ruangguru Application, and Learning Motivation toward students' Learning Achievement of Economic Subjects. This research is an Explanatory research. This research was conducted in December, 2019 at Public Senior High School 1 Bukittinggi. In order to take the sample, the researchers used Proportional Random Sampling. The samples consisted of 112 respondents. To collect the data, the researchers used documentation and questionnaires. Documentation was used for Learning Achievement of Economic Subjects, while questionnaires were for Smartphone, Ruangguru Application, and Learning Motivation. The researchers analyzed the data by using Multiple Regression Analysis technique. The results showed that: (1) Smartphone has a positive influence toward Economic Learning Achievement; (2) Ruangguru application has a positive influence toward Economic Learning Achievement; (3) Learning Motivation has a positive influence toward Economic Learning Achievement; and (4) Smartphone, Ruangguru application, and learning motivation all together to have a positive influence toward Economic Learning Achievement.

Keywords: *smartphone, ruangguru application, learning motivation, learning achievement*

1. INTRODUCTION

Smartphone technology is always progressing from time to time. Nowadays smartphones are seen in the competitiveness of various brands such as Nokia, Samsung, Asus, Advan, Mito, Asiaphone, Evercoss, Vivo and others. Of the brands mentioned above have advantages and disadvantages of each, one example is Samsung which has advantages such as having internet access speed that is equipped with 3G and 4G LTE network technology while Samsung's weakness is not equipped with a screen protector. Smartphones are used for the purposes of calling

and sending messages, the development of smartphones in the midst of the globalization of communication and information technology can also be used for education, especially for students. The presence of a smartphone provides sophistication that can be accessed by all information quickly throughout the world, easily and cheaply can be used as a form of learning patterns to improve its performance with various features available such as internet access networks that provide various kinds of information needed by users, chat or conversation short via Facebook, Blackberry Messenger Line, Twitter, Instagram, Youtube, and others.

Research conducted by Yen in (Muflih, 2017) in 2009, found that from 10,191 adolescents studied reported that 30% of participants could tolerate smartphone use, 36% had withdrawals, 27% showed heavier use, 18% failed to reduce smartphone use, and 10% experience impaired social interactions. Many government authorities recognize that there is definitely a risk of addiction due to excessive use or misuse of smartphones. However, due to limited findings and do not have validated standards about smartphone addiction. On smartphones, there are various applications such as being able to Sending messages, sending pictures, data, having a group to be able to have a conversation with several people together, sending voice messages or telling friends or relatives where we are by sending our location. Smartphones have other applications such as e-mail (sending messages via the internet), Browsing (browsing is done with the presence of the internet network), the presence of entertainment such as music, videos and the existence of various kinds of games that can be downloaded makes the smartphone owner interested in playing, the ability of the camera that has power considerable storage power. Learning patterns are one of the important factors that greatly affect the achievement or learning outcomes obtained by students. In education it is often known that students have different learning patterns from each other.

The difference can be seen from two aspects, namely before getting to know smartphone technology and after getting to know the smartphone technology. Student learning patterns before learning smartphone technology examples of limited learning time students can only receive subject matter when in class in the teaching and learning process and students must read books in the library to be able to increase knowledge not given by the teacher but after getting to know smartphone technology students easily search for subject matter and increase their own knowledge by using applications that are on smartphones anywhere and anytime. The development of

technologies such as smartphone sophistication, students only need to have a smartphone to be able to access online tutoring applications, so students can determine when to study with full concentration without interference from other things. This phenomenon is called online guidance (online guide). Lessons learned by students at school can be learned through this online tutoring. A curriculum that has been prepared by the government, which is usually applied in schools is also available in online tutoring.

Now online tutoring services are increasingly prevalent not in Indonesia but also throughout the world. Therefore, there are many people who take the initiative to create an online tutoring service with highly competent tutors or teachers as well as experience and high flight hours. In Indonesia, the most popular online tutoring right now is the Ruangguru application. Hamalik as quoted by Wenno et al (2016) in (Gideon, 2017) states that if students experience failure or setback in learning outcomes, it means that there are difficulties encountered during learning. One indicator of student learning difficulties can be seen from the low learning outcomes obtained or not as expected. Teachers sometimes do not understand every difficulty experienced by students. In fact, by knowing the difficulties faced by students in learning, teachers can find alternative solutions or solutions to the right problems to overcome the difficulties faced by students in learning.

The Department of Educational Psychology Team (Mulyadi, 2010) in (Gideon, 2017) defines tutoring as the process of providing assistance to students in solving difficulties associated with learning problems. This is what online counseling programs see as a potential business that has a high enough chance. The adopted online system allows anyone to join online tutoring without having to worry about being crammed into the classroom. As long as students have adequate gadgets and internet networks, they can access online tutoring wherever and whenever.

2. METHODS

This research has been conducted at SMA Negeri 1 Bukittinggi. This location was chosen with consideration relevant to the object under study. The population consists of objects or subjects that will be discussed and owned by research conducted by researchers and the conclusions drawn from the research. Sugiono (2010). The population taken was 155 people. In order to take the sample, the researchers used the Proportional Random Sampling technique. According to Sugiyono (2014), the samples were taken if the object or the data sources are very large. Therefore, the researchers used the following Slovin formula used in (Umar, 2011):

$$n = \frac{N}{1 + Ne^2} \tag{1}$$

The total number of samples was 112 students represented each of classes which was used the following formula:

$$nk = \frac{pk}{p} xn \tag{2}$$

Table 1.The samples of the research

No.	Class	Total Population
1.	XII IPA 1	22
2.	XII IPA 2	23
3.	XII IPA 3	22
4.	XII IPA 4	23
5.	XII IPA 5	22
	Total	112 Students

Source :Primary data processed results of 2019

1.1. Variable Operational Definition

The learning achievement of the twelve natural science students of State Senior High School 1 Bukittinggi, Learning achievement is a real result obtained after learning activities or learning experiences which are reflected through the report cards that have been obtained by students.

Indicator of this variable is the index of student report cards. The use of Smartphone.

Smartphone is an object that is supported by features that are desired in the daily life of the user and has the ability like a computer that can be carried anywhere. Ruangguru Application. Ruangguru application can be accessed by an internet network that can be accessed anywhere we are, and the use of this tutoring application can help students in learning.

Learning motivation. It is an impulse or desire that gives rise to an action to achieve a goal. High motivation to learn, especially motivational encouragement from parents and peers will make the learning achievement of the twelve natural science students of State Senior High School 1 Bukittinggi increase.

1.2. Data Analysis Method

1.2.1. Test validity

Valid means that the instrument can be used to measure what is being measured Sugiyono (2009). In the validity test, the product moment correlation technique formula can be used. According to (Umar, 2008):

$$r_{xy} = \frac{n \cdot \sum xy - (\sum x)(\sum y)}{\sqrt{\{n \sum x^2 - (\sum x)^2\} \cdot \{n \sum y^2 - (\sum y)^2\}}} \tag{3}$$

The value of r table with a significance level (α) of 5% with n = 30 is 0.361. It means that the instrument was valid if r count > 0.361

1.2.2. Reliability test

In deciding reliability, an instrument can be reliable if the Cronbach Alpha value is greater than 0.6 (Arikunto, 2006). The formula for calculating the instrument reliability coefficient by using Cronbach Alpha is as follows:

$$r_{11} = \left[\frac{k}{k-1} \right] \frac{(1-\sum ab^2)}{1-\sum t^2} \tag{4}$$

Explanation:

r_{11} = Instrument Reliability

$\sum ab^2$ = Number of Variant items

K = Number of questions

\sum^2t = Total variant

1.2.3. The Technique of Data Analysis

Descriptive analysis is a statistic used to analyze data by describing data that has been collected as it is without intending to make conclusions or generalizations that are generally accepted, (Sugiyono, 2010)

1.2.4. Classic assumption test

The first step of regression analysis is an examination of assumptions that test residual normality, the absence of heterokedasticity problems in residuals, multicollinearity, and the absence of autocorrelation problems in residuals (Yamin, 2009)

1.2.5. Hypothesis tests

1.2.5.1. Multiple Linear Regression

In using multiple linear regression, the requirements that must be met are the need to do a classic assumption test or the test requirements for multiple regression analysis so that the regression line equation obtained can really be used to predict the dependent variable or criterion. The coefficient of determination (R^2) aims to measure how far the ability of the model can explain the dependent variables Ghazali (2013). In testing the hypothesis of the coefficient of determination seen from the value of R Square (R^2), to find out how far the independent variables of learning motivation and peer environment on student achievement. Regression equation as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e \quad (5)$$

Explanation:

Y = Learning achievement

X_1 = The use of smartphone

X_2 = Ruangguru Application

X_3 = Learning Motivation

a = Constant

e = Error

1.2.5.2. Double determinant Coefficient (R^2)

To find out the amount of contribution made by each variable. Then we need to find the partial determination coefficient. The coefficient of partial determination is also used to explain values ranging from zero to one. If R^2 approaches 1 (one) then it can be said the stronger the model is in explaining the variation of the independent variable to the dependent variable partially and vice versa R^2 approaches 0 (zero), the weaker the variation of the independent variable in explaining the dependent variable.

1.2.5.3. Simultaneous Test (F Test)

Coefficient testing simultaneously is to determine the influence of independent variables together (simultaneously) on the dependent variable. The testing process is done by comparing the value of $F_{\text{calculate}}$ with the value of F table at a significant level (α) and degrees of freedom (df). If the probability value is smaller than 0.05 (for the significance level = 5%), then the independent variables together affect the dependent variable. Meanwhile, if the probability value is greater than 0.05 then the independent variables simultaneously do not affect the dependent variable (Syahrudin et al, 2015).

1.2.5.4. Partial Test (T Test)

Partial coefficient testing is to determine the effect of each independent variable partially \ on the dependent variable. The testing process is conducted by comparing the value of t tabel at a significant level (α) and degrees of freedom (df)

Table 2. Multiple Linear Regression Test Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-28.870	4.830		-5.977	.000
	X1	.907	.267	.351	3.391	.001
	X2	.612	.219	.288	2.791	.006
	X3	.347	.120	.212	2.899	.005
a. Dependent Variable: Y						

Source: Data analyzed by SPSS, 2020

On the basis of the table that has been described, the linear regression equation can be obtained :

$$Y = - 28,870 + 0,907 (X1) + 0,612 (X2) + 0,347 (X3) + e$$

Partial Determinant Coefficient (r²)

This coefficient is used to determine the influence of: (a) The high influence of the contribution of the use of smartphones to learning achievement. (b) The high influence of the contribution of ruangguru applications to learning achievement. (c) The high influence of the contribution of learning motivation to learning achievement.

Table 3. Determinant Analysis Test Results (R²)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670 ^a	.449	.434	4.99701
a. Predictors: (Constant), Teacher motivatioin (x3), Ruangguru Application (x2), The use of samrtphone (x1)				

From table 3 above, the results of calculations with SPSS data processing v.16.00 for windows obtained the coefficient of determination (R²) that is equal to 0.449. This means that the influence of the contribution of the use of smartphones,

Ruangguru applications, and learning motivation towards learning achievement is 49.4%% while the remaining 50.6% is influenced by other factors that influence the determination of learning achievement.

Table 4. The result of F test

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2200.089	3	733.363	29.370	.000 ^a
	Residual	2696.768	108	24.970		
	Total	4896.857	111			

Based on the table above, it can be seen that the F count is 29.370 with a probability of 0,000. The result of F_{count} is compared with F_{table} using a significance level of 0.05 so that it was obtained 1.98. Therefore, F_{count} is greater than F_{table} ($29.370 > 1.98$). Then, H_0 is rejected and H_a is accepted. Thus, it can be concluded that the use of Smartphone (X1), Ruangguru Application (X2), and Learning Motivation (X3) together have significant influence toward students' achievement (Y).

3. RESULT AND DISCUSSION

3.1. The use of Smartphone variable toward Learning Achievement

The results of the data analysis show that the value of t_{count} is 3,391, while the value of t_{table} for $n = 112$ is 1,982173. Thus, the value of t_{count} is greater than t_{table} ($3,391 > 1,982173$). Therefore, there is an influence on the use of smartphones towards student learning achievement. The above findings are in line with Barker (2005), this smartphone is an opportunity for students to take learning experiences outside of class boundaries. Because this device has portability properties, this device can be operated wherever and whenever it is needed. Utilization of ICT (Information Communication Technology) media at this time is indeed very necessary to support the subject matter being taught.

3.2. Ruangguru Application variable toward Learning Achievement

The results of data analysis show that the value of t_{count} is 2,791, while the value of t_{table} for $n = 112$ is 1,982173. Therefore, the value of t_{count} is greater than t_{table} ($2,791 > 1,982173$). It means that there is an influence of ruangguru application on student learning achievement. According to Herman (2005) With advances in technology, online tutoring is also growing, students can learn by determining the time they want, students only need to have a smartphone with an internet network so students can learn online. This phenomenon is called online tutoring (online tutors). Lessons that students get at school can be learned through this online tutoring. The curriculum that has been prepared by the government, which is usually applied in schools is also available in online tutoring. Now online tutoring services are increasingly prevalent not in Indonesia but also throughout the world. Therefore, there are many people who take the initiative to create online tutoring services with highly competent tutors or teachers as well as experience and high flight hours.

3.3. Learning Motivation toward Learning Achievement

The results of the data analysis show that the value of t_{count} is 2,899, while the value of t_{table} for $n = 112$ is 1,982173. Thus, the value of t_{count} is greater than t_{table} ($2,899 > 1,982173$). It means that there is an influence of learning motivation on student achievement. According to (Sardiman, 2009)

"motive is interpreted as an effort to encourage someone to do something". Starting from the word motif, then motivation is defined as an active driving force at certain times, especially when the need to achieve an urgent goal. Based on these explanations, it can be said that Learning Motivation is an impulse that arises in a person for a purpose that is realized by changing the learning activities and then the student's behavior. Learning motivation becomes an encouragement to move students to be more active in learning so as to achieve Economic Learning Achievement as expected.

3.4. The influence of Smartphone, Ruangguru application, and Learning Motivation toward Learning Achievement.

The results of data analysis show that the value of t_{count} is 29,370 and the value of F_{table} for $n = 112$ is 1,98. This hypothesis is significant if F_{count} is greater than F_{table} ($29,370 > 1,98$). Hence, it can be concluded that the use of Smartphones (X1), Ruangguru Applications (X2), and Learning Motivation (X3) have a significant influence toward Students' Learning Achievement (Y). From the results of the analysis of the coefficient of determination (RSquare), it shows that all three variables have an influence of 0.449, which means the independent variable Smartphone Influence, Ruangguru Application, and Learning Motivation has a 49.4% effect on student achievement. This means that 50.6% is influenced by other factors not examined in this study

4. CONCLUSIONS

From the results obtained that has been conducted on the influence of using a smartphone, ruangguru applications and learning motivation toward learning achievement of twelve grade natural science students of Senior High School I Bukitinggi, it can be concluded that: (1) The use of Smartphone has a significant positive influence toward learning achievement of twelve grade natural science students of Senior High School I Bukitinggi. This shows that the use of smartphones for learning will have a good

influence on learning achievement. (2) Ruangguru Application has a significant positive influence toward learning achievement of twelve grade natural science students of Senior High School I Bukitinggi. This shows that the use of the Ruangguru application students no longer needs to go outside the house to follow the tutoring, with advances in online tutoring technology such as Ruangguru providing fresh air for students to learn independently. (3) Learning Motivation has a significant positive influence toward learning achievement of twelve grade natural science students of Senior High School I Bukitinggi. This influx can result in increased student motivation to learn, so the achievements will be high. (4) The use of a Smartphone, Ruangguru application, and learning motivation have significant positive influence toward learning achievement of twelve grade natural science students of Senior High School I Bukitinggi. The higher the use of smartphones for learning, and the use of ruangguru online tutoring applications will increase learning motivation so that students will also have a higher influence on student achievement.

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