



# The Influence Of Computerized Systems On Employee Effectiveness (Case Study At The Mining And energy Office Of North Sumatra Province)

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b> Received Mei 02, 2020 Revised Jun 06, 2020 Accepted Jul 30, 2020</p> <p><b>Keywords:</b> Effect Of Computerized System On Employee Work Effectiveness</p>	<p>This study discusses the effect of computerized systems on employee work effectiveness. Where this computerized system helps to complete the work of employees properly, at the right time and can increase the effectiveness of employees' work. The formulation of the problem in this study is how the influence of a computerized system on the effectiveness of employees' work at the Mining and Energy Office of North Sumatra Province. The form of research in this thesis uses a quantitative research form with a sample of 32 respondents taken 32% of 100 employees at the Mining and Energy Office of North Sumatra Province. The results of this study prove that the computerized system has a positive effect on the effectiveness of employees' work. The effect of a computerized system on employee work effectiveness or 51.97% at the Mining and Energy Office of North Sumatra Province, this is based on r count greater than r table (<math>0.9306 &gt; 0.349</math>) and has been explained in the previous chapter, and if the effect is interpreted to be in the moderate category.</p> <p><i>This is an open access article under the <a href="https://creativecommons.org/licenses/by-nc/4.0/">CC BY-NC</a> license.</i></p>



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## 1. INTRODUCTION

The progress of a country is based on how far the science and technology is controlled by the country. This is very reasonable because science and technology are the basis of every aspect of human life.

Technological developments from time to time will be more sophisticated and become interesting things to continue to follow. With the development of this technology, humans are used to fulfill their needs such as the use of tools for long-distance communication and as entertainment, the internet which is useful for finding outside information and various knowledge, and so on as well as for the effectiveness of one's work. ([www.kompasiana.com/vanessams/technology-development-in-Indonesia](http://www.kompasiana.com/vanessams/technology-development-in-Indonesia)).

With the advent of computer technology and the development of its users, every office work unit uses computer assistance. The use of computers can also increase productivity and work effectiveness as well as time efficiency. However, in this scientific work, the author focuses more on the use of computers to work effectiveness.

In order to achieve effectiveness, there are various obstacles faced by employees in carrying out their work that do not support the creation of such effectiveness, for example the variety of tasks carried out by each section which causes various procedures for completing each task, besides that there is also a lack of facilities and infrastructure that supports the implementation of the work. In order for all its activities to run smoothly and the goals that have been set can be achieved easily and effectively, an organization must be able to provide complete, correct and actual information. For that we need a more practical information system that can be relied on in processing data into useful information in carrying out organizational tasks.

To carry out these tasks, the North Sumatra Province Mining and Energy Office requires relevant and accurate data and information in order to carry out its duties effectively.

The Office of Mining and Energy of North Sumatra Province in carrying out and carrying out its duties and functions definitely requires good and appropriate management in managing the organization in order to run effectively, therefore it is necessary to have a good support system, namely a computerized system.

## 2. RESEARCH METHOD

The research method used in this study is a correlational research method with quantitative analysis, namely a research method that explains causal relationships between variables using statistical formulas.

### 2.1 Score Measurement Technique

To assist in analyzing the data obtained in the study, this study uses a scoring technique. The score measurement technique that will be used is the ordinal scale to assess the respondents' answers to the questionnaire. The scores determined for each question are:

- a. For alternative answer a is given a score of 1
- b. For alternative answer b is given a score of 2
- c. For alternative answer c is given a score of 3
- d. For the alternative answer d is given a score of 4
- e. For the alternative answer e is given a score of 5

## 3. RESULTS AND DISCUSSIONS

### 3.1 Data Recapitulation

After all the data obtained from the research results are described, the next step is to discuss and interpret the data for each research variable, namely by making a data recapitulation from the computerized system (Variable X) and employee work effectiveness (Variable Y). the following :

**Table 1.** Recapitulation of Respondents' Answer Classification Based on the System Computerized

Category	interval	Frequency	Percentage (%)
Very high	71.1097 – 80.4273	2	6.25
Tall	61.792 – 71.1096	3	9,375
Currently	52.4734 – 61.791	11	34,375
<b>Low</b>	<b>43.1557 – 52.4733</b>	<b>15</b>	<b>46,875</b>
Very low	33,838 – 43,1556	1	3.125
<b>Amount</b>		<b>32</b>	<b>100</b>

Source: Research Questionnaire (2016)

Based on the table above, it can be seen that the computerized system at the Mining and Energy Office of North Sumatra Province, is in the low category as shown by 15 respondents (46.875%), the medium category is 11 people (34.375%), the very low category is 1 person ( 3.125%), then the very high category as many as 2 people (6.25%) and the high category as many as 3 people (9.375%).

### 3.2 Recapitulation of the Classification Frequency of Respondents' Answers for Employee Work Effectiveness (Variable Y)

After the research data were analyzed, the highest score/score was 30.7622 and the lowest score/score was 9.044. To determine the interval distance, the following formula is used (Sugiyono, 2005): To find out the Work Effectiveness of Employees at the Mining and Energy Office of North Sumatra Province, it can be seen from the recapitulation of respondents' answers in the following table:

**Table 2.** Recapitulation of Classification of Respondents' Answers Based on Employee Work Effectiveness

Category	Interval	Frequency	Percentage(%)
Very high	26.4186 – 30.7622	3	9,375
Tall	22.0749 – 26.4185	10	31.25
<b>Currently</b>	<b>17.7312 – 22.0748</b>	<b>17</b>	<b>53,125</b>
Low	13.3875 – 17.7311	1	3.125
Very low	9.044 – 13.3874	1	3.125
<b>Amount</b>		<b>32</b>	<b>100</b>

Source: Research Questionnaire (2016)

Based on the table above, it can be seen that the effectiveness of the work of employees at the Mining and Energy Office of North Sumatra Province, is in the medium category which is indicated by 17 respondents (53.125%), very high category as many as 3 people (9.375%), high category as many as 10 people. (31.25%), the low category is 1 person (3.125%) and the very low category is 1 person (3.125%).

### 3.3 Validity and Reliability Test

#### a. Validity test

To test the validity, then the value of tcount by first looking for the value of r using the Pearson Product Moment formula. The value of r obtained is used to obtain the value of tcount by using the t-test formula. To see the ttable value in this study with the provisions of  $dk = n-2$ ,  $40-2 = 38$  and a significance level of 5%, the number obtained from the ttable value is 2.02439. Based on testing on 20 question items consisting of 13 statement items for the x variable (computerized system) and 7 statement items for the y variable (employee work effectiveness) using the Microsoft Office Excel 2013 program, the instrument validity of each question item can be obtained as follows:

**Table 3.** Instrument Validity For Variable X (Computerized System)

No Question	tcount	<or>	ttable	Validity
1	3.769189	>	2.042	Valid
2	2.685666	>	2.042	Valid
3	3.308377	>	2.042	Valid
4	3.155256	>	2.042	Valid
5	3.820294	>	2.042	Valid
6	4.472392	>	2.042	Valid
7	3.08158	>	2.042	Valid
8	4.370321	>	2.042	Valid
9	3.772435	>	2.042	Valid
10	4.551461	>	2.042	Valid
11	3.328574	>	2.042	Valid
12	6.277717	>	2.042	Valid
13	3.468684	>	2.042	Valid
14	3.185596	>	2.042	Valid
15	2.577264	>	2.042	Valid
16	3.250231	>	2.042	Valid
17	4.550055	>	2.042	Valid
18	4.62876	>	2.042	Valid

Source: 2016 Research Data Results That Have Been Processed

From table 3 above, it can be seen that all statement items are declared valid, which are obtained from  $tcount > ttable$  for  $dk = 32-2 = 30$  and  $\alpha (\alpha) = 5\%$ .

**Table 4.** Instrument Validity for Variable Y (Employee Work Effectiveness)

No Question	t <sub>count</sub>	< or >	t <sub>table</sub>	Validity
1	6.037319	>	2.042	Valid
2	6.499692	>	2.042	Valid
3	6.71257	>	2.042	Valid
4	5.473723	>	2.042	Valid
5	7.38868	>	2.042	Valid
6	5.626346	>	2.042	Valid
7	4.646084	>	2.042	Valid

Source: 2016 Research Data Results That Have Been Processed

From table 4 above, it can be seen that all question items are declared valid, which are obtained from  $t_{count} > t_{table}$  for  $dk = 32 - 2 = 30$  and  $\alpha$

#### b. Reliability Test

In the instrument reliability test, the instrument items are divided into two groups, namely the odd instrument group and the even instrument group. For the odd instrument group, the item scores are added up to produce a total score, the same as for the even instrument group. Furthermore, the total score between the odd and even instrument groups was searched for the correlation with the Pearson Product Moment correlation formula. Calculation of this correlation using Microsoft Excel 2013 program, in order to obtain  $r = 0.870231$  for the variable x and  $r = 0.79437$  for the variable y. Then the correlation value is entered into the formula for testing the reliability of the instrument with the Spearman Brown halving technique.

#### c. Simple Linear Regression

Simple linear regression analysis is performed when the relationship between two variables is a causal/cause-effect or functional relationship. Simple linear regression analysis is also used to see how the independent variable (X) affects the dependent variable (Y). Based on simple linear regression calculation, the value of the computerized system and the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province is  $Y = 4.473 + 1.756 X$ . The results of the regression equation above have the following meanings:

From the results of the simple linear regression calculation, the constant value (a) is 1.756 and the value (b) is 4.473, which means that if the independent variable is a fixed computerized system ( $X = 0$ ) then the change in employee work effectiveness is 4.473 or 13.9781%. The regression coefficient of 0.349 resulted in a computerized system having a positive effect on the effectiveness of employees' work. This value indicates that every time there is an effort to add one unit to the computerized system or the X variable is increased by 100%, the employee's work effectiveness will increase by 0.349.

From the explanation above, it can be concluded that there is a significant and positive relationship between the computerized system on the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province.

#### 3.4 Product Moment Correlation Coefficient

To find out whether there is or not and the size of the relationship between the computerized system (variable X) on the work effectiveness of employees (variable Y), it can be seen by using the Product Moment Correlation formula (Sugiyono, 2005). The results of the correlation calculation obtained are 0.7209 positive, meaning that there is a relationship between the computerized system and the work effectiveness of the employees of the North Sumatra Priovinsi Mining and Energy Office. So the results of the previous correlation calculations need to be adjusted to the table values. From the correlation calculation above, the value of r<sub>count</sub> is 0.7209, when consulted with the r<sub>table</sub> value for  $n = 32$  and an error of 5%, the r<sub>table</sub> is 0.349. Thus the correlation is significant and the proposed hypothesis can be accepted because  $r_{xy}$  is greater than the r<sub>table</sub> value of  $n = 32$ , namely  $0.7209 > 0.349$ . To determine the level of high and low correlation coefficient, it is necessary to interpret the following (Sugiyono, 2005: 212):

**Table 5.** Correlation Coefficient Interpretation Table

Coefficient Interval	Relationship Level
Between 0.00 – 0.19	Very low
Between 0.20 – 0.39	Low
Between 0.40 – 0.59	Currently
<b>Between 0.60 – 0.79</b>	<b>Tall</b>
Between 0.80 – 1.00	Very high

From the results of calculations using the Product Moment Correlation coefficient formula, the results obtained are 0.7209. So it can be concluded that the existence of a computerized system has a positive influence on the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province. In other words, if one variable increases, it will be followed by an increase in the correlated variable. In addition, by consulting the *r* obtained with Sugiyono's interpretation guide table, it can be seen that  $r = 0.7209$  is in the coefficient interval between 0.60 - 0.79. So, the level of influence between the computerized system on the work effectiveness of employees at the North Sumatra Province Mining and Energy Service is at a high level of relationship.

#### 4. CONCLUSION

The results of the recapitulation of the research data indicate that the influence of the computerized system on the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province can be said to be good. It can be shown that the computerized system (variable X) is in the low category based on the answers of 15 respondents (46.875%) of the total 32 respondents (100%). Meanwhile, the performance of employees is in the medium category based on the answers of the respondents, which amounted to 17 people (53.125%) of the total respondents as many as 32 respondents (100%).

Based on the validity test for the X variable (computerized system) of 18 question items, all were declared valid obtained from  $t_{count} > t_{table}$  (2.042) for  $dk = 32 - 2 = 30$  and  $\alpha (\alpha) = 5\%$  and for the Y variable (work effectiveness employees) of the 7 question items, all were declared valid obtained from  $t_{count} > t_{table}$  (2.042) for  $dk = 32 - 2 = 30$  and  $\alpha (\alpha) = 5\%$ . Meanwhile, based on the instrument reliability test with the Pearson Product Moment correlation formula using the Microsoft Office Excel 2013 program. variable X is declared reliable. So that the instrument for variable X is declared reliable and the value of the reliability coefficient of the instrument variable Y is  $r_i > r_{table}$  value, namely  $0.9306 > 0.312$  so that the instrument for variable Y is declared reliable. Based on simple linear regression calculation, the value of education and training and employee performance at the Mining and Energy Office of North Sumatra Province is  $Y = 4.473 + 1.756 X$ . Based on the calculations and figures above,  $t_{count}$  is 5.696 and  $t_{table}$  is 2.042, it can be stated that  $H_a$  is accepted if  $-t_{\alpha} < t_{count} < + t_{\alpha}$  ( $-2,042 < -5.696$  and  $5.696 > 2.042$ ) and  $H_o$  is rejected. From this explanation, there is a significant influence between the computerized system on the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province.  $r_{table}$  value is  $0.9306 > 0.312$  so that the instrument for variable Y is declared reliable. Based on simple linear regression calculation, the value of education and training and employee performance at the Mining and Energy Office of North Sumatra Province is  $Y = 4.473 + 1.756 X$ . Based on the calculations and figures above,  $t_{count}$  is 5.696 and  $t_{table}$  is 2.042, it can be stated that  $H_a$  is accepted if  $-t_{\alpha} < t_{count} < + t_{\alpha}$  ( $-2,042 < -5.696$  and  $5.696 > 2.042$ ) and  $H_o$  is rejected. From this explanation, there is a significant influence between the computerized system on the work effectiveness of employees at the Mining and Energy Office of North Sumatra Province.  $r_{table}$  value is  $0.9306 > 0.312$  so that the instrument for variable Y is declared reliable. Based on simple linear regression calculation, the value of education and training and employee performance at the Mining and Energy Office of North Sumatra Province is  $Y = 4,473 + 1,756 X$ . Based on the calculations and figures above,  $t_{count}$  is 5.696 and  $t_{table}$  is 2.042, it can be stated that  $H_a$  is accepted. if  $-t_{\alpha} < t_{count} < + t_{\alpha}$  ( $-2,042 < -5.696$  and  $5.696 > 2.042$ ) and  $H_o$  is rejected. From this explanation, there is a significant influence between the computerized system on the work

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With the coefficient of determination, the result is 51.97%. This means that the achievement of employee work effectiveness at the Mining and Energy Office of North Sumatra Province is influenced by the existence of a computerized system by 51.97%. While the rest is influenced by other factors that are not discussed in this study that is equal to 48.03%.

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