**DEVELOPMENT OF ONLINE-BASED COUNSELING COMMUNICATION FOR LOWLAND RICE FARMERS IN TELAGA SUBDISTRICT, GORONTALO REGENCY**

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**ABSTRACT**

The current online-based era is part of advanced technology powered by the internet and has brought many changes in result. This study aimed to discern how online-based extension communication has developed in farmer groups and determine the effect of online-based extension communication development on the work volume of farmer groups. This research is conducted from September 2021 to March 2022 in Telaga District, Gorontalo Regency. Simple random sampling was used to collect the data and determined by Slovin formula. In addition, three kinds of test analysis are employed in this study: multiple linear regression, hypothesis testing, and determination. The findings revealed that the right person and the right location partially have a simultaneous effect on said communication. Meanwhile, the f-test showed that the right person, the right location, and the proper communication device does affect the effectiveness of online-based extended communication.

**Keywords:** *Development, Communication, Online, Farmer Groups*

**INTRODUCTION**

To realize domestic food security, the government is working on various projects. According to the Food Security Council (2006), food security will be achieved as long as sufficient and affordable food is available. Ekasanika *et al*. (2017) report that agricultural development focuses more on improving production quality. The ability of human resources to manage agricultural systems following advances in science and technology is one of the determinants of the success of agricultural growth. Therefore, Oktarina *et al*. (2019) state that the agricultural development initiative is related to the task of agricultural extension workers to convey or transfer the information as new knowledge to farming communities.

Meanwhile, data from Statistics of Gorontalo Province (2021) shows that the rice harvested area in Gorontalo Province from 2019 to 2020 has increased. Rice harvested area of 49,010 ha in 2019 increased to 50,557 ha in 2020. In addition, during this period, lowland rice production in Gorontalo Province increased from 23,211 tons in 2019 to 241,065 tons in 2020. In Telaga Subdistrict, Gorontalo Regency, the rice harvested area is around 431.45 ha, with a total annual production of 3,933 00 tons/year.

Due to the endless Covid-19 pandemic, agricultural and non-agricultural companies must "live with Covid-19". Extension workers and farmers must adapt to new attitudes and behaviors (new normal). The fundamental impact of Covid-19 is limited mobility due to large-scale social restrictions, reduced access to agricultural knowledge, infrastructure, and resources, and difficulties in communication and assistance from agricultural extension workers. The Covid-19 outbreak had a broad impact, affecting various industries, including agriculture. Various activities, on-farm or off-farm, are not optimal (Elizabeth, 2021).

To increase rice yields, farmers rely not only on their abilities but also on the role of extension workers in developing their agricultural knowledge, one of which is through communication devices and information technology. Anwar *et al*. (2017) explain that advances in digital technology have been facilitated by the availability of high-speed internet, which has resulted in various changes in the field of communication.

According to Liliweri (2017), the word "communication" comes from the Latin "comunicare," which means "to transfer or transmit." This definition explains the purpose of communication: to ensure that everyone has the same information and sentiments about something in general and in detail. Meanwhile, Suherman (2020) explained that communication between humans is essential to human life. In everyday life, people communicate with their social environment verbally and nonverbally.

Digital-based or online communication is direct interaction using digital communication tools. Anwar et al. (2017) argue that advances in digital technology, aided by the power of the internet, have resulted in many amazing transformations, especially in communication. Developments in communication and digital technology have given rise to various communication media, from complex space and military communication devices to ordinary daily cell phones, from business-purpose uses to daily social interaction. Therefore, this study aims to analyze the role of digital communication technology in the emergence of smartphones in human life.

As a result, extension workers and farmers must be technology literate and able to use various media according to their needs. It does not prevent farmers from being cosmopolitan because they can communicate online by searching for information outside the system or using technology such as the internet. Anyone can access online-based information. Extension workers' needs for innovation can be met through various sources. One of them is the internet which can be accessed through various electronic devices. In helping farmers solve problems, extension workers often face innovation gaps. The application of information technology through computers and cellular phones in implementing cyber extensions in various countries can accelerate the learning process of the community (Oktarina *et al*., 2019).

There are 1,098 extension workers and 103,168 farmers in Gorontalo Province, 329 extension workers and 33,104 farmers in Gorontalo Regency, and 9 extension workers and 16 farmers in Telaga Subdistrict. Therefore, it is interesting to see the growth in the use of online-based communication media as a source of information for lowland rice farmers in Telaga Subdistrict, Gorontalo Regency.

The study aims to determine the development of online-based extension communication and analyze its effect on the effectiveness of online-based extension on lowland rice farmer groups in Telaga Subdistrict, Gorontalo Regency.

**METHOD**

**Location and Time**

The study took place in Telaga Subdistrict, Gorontalo Regency, from September 2021 to March 2022. Purposive sampling (deliberate sampling) was used to select locations based on considerations of their strategic location.

**Data Types and Sources**

This quantitative study uses a descriptive technique. The types of data collected are primary and secondary. Primary data are collected directly from sources through questionnaires, including a collection of questions or statements addressed to farmers, while secondary data come from relevant agencies in the villages.

**Sampling Technique**

The technique used is simple random sampling, described by Fitria et al. (2018: 200) as a simple technique since it is done randomly without regard to similarities or strata in the population. The sample size of 719 lowland rice farmers in Telaga Subdistrict, Gorontalo Regency, was determined by the slovin formula, where:

n : Sample Size

N : Population Size

e2 : Margin of Error (error tolerance)

Using the Slovin formula with an error tolerance of 15%, the sample size obtained is 42.

**Data Analysis Technique**

This quantitative study uses an inductive, objective, and scientific inquiry technique where the data collected is presented in numbers (scores) or words that are evaluated and examined statistically (Hermawan, 2019).

**Data Quality Analysis**

1. **Validity test**

The validity test aims to determine the validity of a measuring instrument in measurement. The validity of the prepared statements can be determined by comparing the score of each statement with the total score.

1. **Reliability Test**

Because the questionnaire used in this study did not contain an incorrect or zero score, the reliability test used the Cronbach Alpha formula. It is considered reliable if the Cronbach Alpha score is more than 0.6.

**Classic Assumption Test**

1. **Normality test**

The normality test is a residual test that determines the normal distribution of the dependent and independent variables in the regression model. Successful regression models have normal or near-normal residual distributions (Halid *et al*., 2018).

1. **Multicollinearity Test**

The linear relationship between the independent variables X in the multiple regression model is called multicollinearity or multiple collinearities. These variables are multiple collinear if the linear relationship between the independent variables X in the multiple regression model is perfectly correlated. Variance Inflation Factors can be used to determine multicollinearity (VIF). If the VIF is less than ten, then there is no multicollinearity between the independent variables, and if the total VIF value is greater than 10, the model is assumed to contain multicollinearity (Basuki *et al*., 2017).

1. **Heteroscedasticity Test**

The variance inequality in the residuals for all data in the regression model was tested for heteroscedasticity. The test aims to determine deviations from the classical assumption requirements in the regression model, which is the absence of heteroscedasticity (Basuki *et al*., 2017).

**Multiple Linear Regression Analysis**

This test calculates the effect of the right person, the right location, and the right communication tool on the effectiveness of online-based counseling using a formula model according to the study objectives as follows:

y : Effectiveness of Online Based Extension (Beta (β))

a : Constant

b1, b2, b3, b4 : Coefficients of determination

x\_1 : The right person

 x\_2 : The right location

x\_3 : The right communication tool

e : Error

**Hypothesis**

This test determines the effect of developing online-based extension communication on the effectiveness of online-based extension on farmers as follows:

**T-Test (Partial Test)**

The t-test assessed the significant effect of each independent variable on the dependent variable. The test is carried out by comparing t-count and t-table or based on a probability or significance value of 0.05.

**F-Test (Simultaneous Test)**

The F-test determines the significant effect of all independent factors on the dependent variable. The test is carried out by comparing the f-count with the f-table or based on the probability value (significance value) of 0.05.

**The Coefficient of Determination (R2) Test**

Moroki *et al*. (2018) explain that the coefficient of determination test (R2) aims to determine the effect of the independent variable. A small or close to zero R2 score indicates that the ability of the independent variable to explain the variation of the dependent variable is relatively limited. An R2 score close to one indicates that the independent variable provides almost all the information needed to predict the dependent variable.

**RESULTS AND DISCUSSION**

**Development of Online-Based Extension Communication**

In Telaga Subdistrict, Gorontalo Regency, lowland rice is wetland agriculture. Farming activities in this area cannot be separated from the role of extension workers in providing helpful information and knowledge. Based on the interviews, almost all farmers in Telaga Subdistrict, Gorontalo Regency, need a lot of information and knowledge from the extension workers. However, the limitations in participating in agricultural extension activities resulted in a lack of proper farming knowledge among farmers. Therefore, the online-based extension makes it easier for farmers to obtain new information or knowledge in farming. The study was conducted from September 2021 to March 2022.

**The Regression Test Results on the Effect of Online-Based Extension Communication Development on Farmers.**

**Multiple Linear Regression**

One of the analyzes to determine the direction of the correlation between the independent and dependent variables is multiple linear regression analysis. Following the conventional assumption test, multiple linear regression testing is required to determine the effect of the independent variable on the dependent variable. Table 1 summarizes the multiple linear regression test as follows:

**Table 1.** Multiple Linear Regression Test Results

|  |  |
| --- | --- |
| **Model** | **Unstandardized Coefficients** |
| **B** |
| 1 | (Constant) | .680 |
| The right person | .292 |
| The right location | -.057 |
| The right communication tool | .688 |

Source: Data After Processing with SPSS 21, 2021

Based on Table 1, multiple linear regression analysis results try to measure the effect of two or more variables. The analysis of the effect of the independent variable on the dependent variable to obtain the results of the regression effect is carried out with the following conditions:

**Y = 0,680 + 0,292X1 - 0,057 X2 + 0,688 X3 + e**

1. The constant value of 0.680 is a fixed value. It means that if the right person, the right location, and the right communication tool have no effect, the average score obtained remains at 0.680.
2. The value of the right person coefficient for the X1 variable is 0.292 or 29.2%. It means that for every 1% increase in the right person's score, the effectiveness of online-based counseling will increase by 29.2%.
3. The value of the right location coefficient for the X2 variable is 0.057 with a percentage of 5.7%, which means that for every 1% increase in the right location score, the effectiveness of online-based counseling will increase by 5.7%.
4. The coefficient value of the right communication tools for the X3 variable is 0.688 or 68.8%. It means that for every 1% increase in the right communication tools score, the effectiveness of online-based counseling will increase by 68.8%.

**Hypothesis**

Hypothesis testing consists of two parts: t-test (partial) and f-test (simultaneous). The formulation of the hypothesis to be tested is as follows:

1. H1= the right person (X1) has an effect on the effectiveness of online-based counseling (Y)
2. H2= the right location (X2) has an effect on the effectiveness of online-based counseling (Y)
3. H3= the right communication tool (X3) has an effect on the effectiveness of online-based counseling (Y)
4. H4= the right person (X1), the right location (X2), and the right communication tool (X3) have a simultaneous effect on the effectiveness of online-based counseling (Y)
5. The confidence level is 95%, a= 0.05

**t-Test (Partial Test)**

The t-test is part of hypothesis testing with the following decision-making basis:

1. If the value of sig <0.05 or tcount > ttable, variable X has an effect on variable Y.
2. If the value of sig <0.05 or tcount < ttable, variable X has no effect on variable Y.

Determination of t-table using the following formula:

**t-table: t = (0,025:38) = 2,024**

**Table 2.** T-Test (Partial Test) Results

|  |  |  |
| --- | --- | --- |
| **Model** | **T** | **Sig.** |
| (Constant) | .546 | .588 |
| The right person | 2.995 | .005 |
| The right location | -.646 | .522 |
| The right communication tool | 5.560 | .000 |

Source: Data After Processing with SPSS 21, 2021

**The Right Person (X1) on Effectiveness of Online-Based Extension (Y)**

In Table 2, the sig value of the right person is 0.005. Variable X1 has a value of t-count = 2,995 and t-table = 2,024. Since t-count > t-table, it can be said that the variable X1 has a contribution to Y. The positive t-count (+) indicates that the right person has a unidirectional correlation with the effectiveness of online-based counseling. Thus, it can be concluded that the right person has a significant effect on the effectiveness of online-based counseling.

**The Right Location (X2) on Effectiveness of Online-Based Extension (Y)**

In Table 2, the sig value of the right location" is -0.522. The sig value is greater than the probability value of 0.05 or -0.646 > 0.05, so H1 is rejected, and Ho is accepted. Variable X2 has a value of t-count = -0.646 and t-table = 2.024. Since t-count < t-table, it can be said that the X2 variable has no contribution to Y. The negative tcount value (-) indicates that the right location has the opposite correlation with the effectiveness of online-based counseling. Thus, it can be concluded that the exact location has no significant effect on the effectiveness of online-based counseling.

**The Right Communication Tool (X3) on Effectiveness of Online-Based Extension (Y)**

In Table 2, the sig value of the right communication tool is 0.000. The sig value is smaller than the probability value of 0.05 or 5.560 > 0.05, so H1 is accepted, and H0 is rejected. Variable X3 has a value of t-count = 5.560 and t-table = 2.021. Since t-count > t-table, it can be said that the X3 variable has a contribution to Y. A positive t-count (+) indicates that the right communication tool has a unidirectional correlation with the effectiveness of online-based counseling. Thus, it can be concluded that the right communication tool has a significant effect on the effectiveness of online-based counseling. The summary of the questions and the tcount value from hypothesis testing can be seen in Table 3 below:

**Table 3.** Summary Results of the T-Test Hypothesis

|  |  |  |  |
| --- | --- | --- | --- |
| **Hypothesis** | **Questions** | **Scores** | **Information** |
| H1 | The right person has a significant effect on online-based counseling | 2,995 | H1 is acceptedHo is rejected |
| H2 | The right location has no significant effect on online-based counseling. | -0,646 | H1 is rejectedHo is accepted |
| H3 | The right communication tool has a significant effect on online-based counseling | 5,560 | H1 is acceptedHo is rejected |

Source: Data After Processing with SPSS 21, 2021

**F-Test (Simultaneous Test)**

The t-test is part of hypothesis testing. The basis of decision making is "If the value of sig < 0.05 or f count > f table, the X variable has a simultaneous effect on the Y variable, while if the sig value > 0.05 or f count < f table, variable X has no simultaneous effect on variable Y". determination of t table is using the following formula: variabel Y. Menentukan t tabel dengan menggunakan rumus sebagai berikut :

**F table : F = (3:40) = 2,839**

**Table 4.** T-Test (Simultaneous Test) Results

|  |  |  |
| --- | --- | --- |
| **Model** | **F** | **Sig.** |
| 1 | Regression | 41.021 | .000b |
| Residual |  |  |
| Total |  |  |

Source: Data After Processing with SPSS 21, 2021

Based on Table 4, the significance value for the simultaneous effect of the right person, the right location, and the right communication tool on the effectiveness of online-based counseling is 0.000 < 0.05, and the F count is 41.021 > F table 2.839. H4 is accepted, which means X1, X2, and X3 have a simultaneous effect on Y. Thus, it can be concluded that the right person, the right location, and the right communication tool simultaneously affect the effectiveness of online-based counseling so that the hypothesis in this study is accepted.

**The Coefficient of Determination (R2) Test**

The coefficient of determination is used to determine the correlation value of several variables. Basuki *et al*. (2017) suggest that determination is used to assess how well the regression line has been performed. In this situation, assessing the amount of variation in the dependent variable can be explained by all the independent factors.

This study uses more than one independent variable, where the results of determining more than one independent variable can be seen from the Adjusted R Square value. This coefficient value between 0 and 1 is the basis for decision-making. If the finding is close to 0, the independent variable's ability to explain the variable's variance is relatively limited. However, if the result is close to 1, the independent variable provides almost all the information needed to predict the dependent variable variation. The results of the determination test are shown as follows.

**Table 5.** Determination (R2) Test

|  |  |
| --- | --- |
| Model | Adjusted R Square |
| 1 | .745 |

Source: Data After Processing with SPSS 21, 2021

Based on Table 5, the Adjusted R Square value is 0.745 or with a percentage value of 74.5%. The result is close to 1, meaning that the right person, location, and communication tool provide almost all the information needed to predict variations in the effectiveness of online-based counseling.

**Development of digital-based extension communication to farmers in Telaga Subdistrict**

Based on the determination test (R2) results, the development of online-based communication among farmers is relatively high, with a value (Adjusted R Square) of 0.745 or a percentage value of 74.5 percent. Extension communication is crucial in providing vital agricultural information for farmer and rice farmer organizations in Telaga Subdistrict. The information can provide new insights to farmers about managing lowland rice production.

Advances in internet communication can make it easier for extension workers to convey information simply by sending and disseminating it through various media. This web-based extension communication benefits farmers, extension workers, and anyone who needs this technology. The development of online-based communication is an alternative for extension workers in facilitating communication.

**The Effect of the Right Person on the Effectiveness of Online-Based Extension on Lowland Rice Farmers in Telaga Subdistrict**

The effect of the right person on the effectiveness of online-based counseling can be seen in the t-test (partial)results, while the simultaneous effect of the variables X1, X2, and X3 on the effectiveness of online-based counseling can be seen in the f (simultaneous) test results. What is meant by the right person is farmers or those who work in the agricultural sector, especially in lowland rice farming. The role of farmers is to manage lowland rice farming. In the process, they always need any input or information. The higher farmers' knowledge in farming management, the better the results.

Helpful information can add insight to a farmer. Therefore, this online-based extension communication is vital for farmers since they can still get information while working. The test results show that the right person has a significant effect on the effectiveness of online-based counseling. This indication is shown by increasing scores on the "right person" questions answered by respondents, which can change the effectiveness of online-based counseling.

**The Effect of the Right Location on the Effectiveness of Online-Based Extension on Lowland Rice Farmers in Telaga Subdistrict**

The t-test (partial) results show that the right location has no effect on the effectiveness of online-based counseling. Meanwhile, the f (simultaneous) test results indicate that the variables X1, X2, and X3 have a simultaneous effect on the effectiveness of online-based counseling. The right location means the research location where the farmer lives. The right location acts as an indicator in determining the effect of location on the effectiveness of online-based counseling. The right location is Telaga Subdistrict, Gorontalo Regency. This area is strategically located between the mountains and the lake, where the internet network is excellent. Therefore, it is inevitable that the location is suitable for conducting studies on the development of online-based communication.

However, the test results show that the right location has no significant effect on the effectiveness of online-based counseling. This conclusion can be seen in the decrease in scores on the right location question answered by respondents, which can change the effectiveness of online-based counseling.

**The Effect of the Right Communication Tool on the Effectiveness of Online-Based Extension on Lowland Rice Farmers in Telaga Subdistrict**

The effect of the right communication tool on the effectiveness of online-based counseling can be seen in the results of the t-test (partial), while the simultaneous effect of variables X1, X2, and X3 on the effectiveness of online-based counseling can be seen in the results of the f (simultaneous) test. The right communication tools are technological tools used in online-based communication. Communication will only be carried out if there are communication tools. Thus, communication tools are the essential component in developing online-based communication.

The communication tool that most farmers in Telaga Subdistrict often use is a cellphone. They take advantage of the various media available in these communication tools. Communication media is a tool to convey messages from communicators to audiences. Communication media can be described as a means of producing, reproducing, managing, and distributing information.

The test results show that the right communication tool has a significant effect on the effectiveness of online-based counseling. This indication can be seen in the increasing score on the question of the right person answered by the respondent that it can change the effectiveness of online-based counseling.

**The Effect of the Right Person, the Right Location, and the Right Communication Tool on the Effectiveness of Online-Based Extension on Lowland Rice Farmers in Telaga Subdistrict**

Simultaneous F-Test results show a significance value smaller than the 0.05 Probability value, and the F-count value is more significant than F-table. It means that the right people, the right locations, and the right communication tools have a simultaneous effect on the effectiveness of online-based counseling.

**CONCLUSION**

Based on the results and discussion, several conclusions can be drawn. First, the development of online-based communication in this research area is relatively high, as indicated by the coefficient of determination R2 regarding the effect of the right person, right location, and right communication tool on the effectiveness of online-based counseling of 74.5%. Thus, online-based counseling is considered necessary by farmers in Telaga Subdistrict. Second, the hypothesis test results show that based on the t-test (partial), the right person and the right communication tool variables have an effect, while the right location variable has no effect on the effectiveness of online-based counseling. However, the f (simultaneous) test shows that the right person, location, and communication tool have a simultaneous effect on the effectiveness of online-based counseling.

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