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The Impact Of Information Communication Technologies (Ict) And Its Usage In Agricultural Extension In The South Sulawesi Province, Indonesia

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ABSTRACT

This study analyzed the factors that contributed to extension workers' perceptions of the use of ICT in Agricultural Extension Centers (BPP) and how extension workers' perceptions of ICT use in Agricultural Extension Centers (BPP) in South Sulawesi Province. This research was conducted in three South Sulawesi Province districts, with five District Agricultural Extension Centers (BPP) as research sites. Data was collected through in-depth interviews using a structured questionnaire. Qualitative data is processed descriptively, while quantitative data is processed using Structural Equation Modeling (SEM) analysis using Linear Structural Relationship (PLS) 3.0. The user's perception of ICT is very positive, marked by an awareness of the importance of using ICT itself. However, it needs to be supported by several factors, including the uneven distribution of funds from the government as well as inadequate infrastructure, which affect motivation and innovation in using ICT tools.

Keywords: Agricultural Extension; Perception; ICT.

INTRODUCTION

The agricultural sector is critical because it has significantly contributed to achieving the Sustainable Development Goals (SDGs) in Indonesia. The role of the agricultural sector is directly related to the 2030 SDGs target, namely the eradication of poverty and hunger. One of the efforts made by the government to reduce poverty in Indonesia is to seek to increase agricultural production through the implementation of extension activities at each Agricultural Extension Center (BPP) (1). Research on "The Barriers of the Indonesian Extension Workers in Disseminating Agricultural Information to Farmers" concludes that one of the tasks of the government agricultural extension service is to transfer agricultural technology from the center of government to farmers through agricultural extension workers (2)

The application of Information Communication Technologies (ICT) in various sectors of the global economy has become a game changer in increasing work efficiency and productivity. The agricultural sector in the global economy is one of the industries that has

experienced extraordinary application of ICT in all areas of its operations. It helps farmers, extension services, and other players in the sector to quickly access readily available information (3). Studies examining the use of ICT in developing countries have identified factors that contribute to its use, including demographic characteristics (4) and contextual factors (5). However, several studies have examined factors related to motivation, attitudes, and perceptions (6).

Research by Verdegem & Marez (2011) emphasizes the importance of understanding user attitudes and perceptions to maximize the effectiveness of ICT in different contexts. Therefore, the authors undertook this study to provide empirical evidence about the role of perceptions and attitudes in using ICT. This research is also fundamental so that it can become a reference for extension workers in determining policies and improving performance. If this is not done, this can have an impact on the development of the agricultural sector, which will continue to move statically because there is still a lack of awareness in adapting to an era that continues to develop, especially in terms of the use of technology as it is today. This research focuses on using ICT in Agricultural Extension Centers (BPP) in three districts in South Sulawesi Province. It is done to see the pattern of ICT use in Agricultural Extension Centers, how significant the influence between factors and the perceptions held by extension experts on the use of ICT for extension services. This research evidence provides insight into the importance of user perceptions of the usefulness of ICT and the surrounding environment for their effective utilization.

Research conducted by Aldosari et al. (2019) entitled "Farmers' perceptions regarding the use of Information and Communication Technology (ICT) in Khyber Pakhtunkhwa, Northern Pakistan" showed that the use of ICT was considered effective in spreading information needed by farmers On-time. However, the implementation needs to be improved because many professional extension workers need exposure to modern ICT tools. Extension workers are needed to create awareness about the use of ICT among farming communities, identify obstacles that hinder farmers from utilizing new sources of information, and educate them about the use of modern ICT as a source of agricultural information. Because of this challenging task, extension workers need training programs to familiarize them with emerging technologies and improve their capacity as extension agents.

Based on research conducted by Ayisi Nyarko & Kozári (2021) entitled "Information and communication technologies (ICTs) usage among agricultural extension officers and its impact on extension delivery in Ghana," the use of ICT devices shows high results among extension workers. The most used ICT tools by extension workers are ICT devices (mobile phones or smartphones, laptops, iPads or tablets, desktop computers), social media (WhatsApp, Facebook, Telegram, and Twitter), and the internet. However, in practice, more is needed to deliver extension services. This tool is used seven to fourteen hours weekly to communicate with friends or family.Factors most critical affecting access extension workers' to ICT in Ghana are connections, telecommunication network weak, lack of

opportunities for training ICT, and lack of ICT infrastructure to support extension activities. Therefore, software for extension agents is needed to be designed explicitly for extension services so that the process of communication and information delivery can be established quickly with farmers.

Subsequent research, namely by Birke (2020), found that attitudes about the use of ICT, as well as perceptions of norms and control factors, contribute to ICT usage behavior in public extension offices. Agricultural Knowledge Centers (AKCs) located in the agricultural extension office of the South Wollo zone, Ethiopia, are intended as ICT access points to agricultural knowledge and information resources. The aim is to increase the knowledge of experts and increase the effectiveness of extension services in Ethiopia. However, nowadays, AKC is mainly used for personal communication and knowledge seeking. Attitudes of users about the use of ICT for the provision of extension services coupled with established norms in the provision of extension services and control factors in the office influence the use of ICT. Therefore, to take advantage of the potential of ICT in agricultural extension, experts and supervisors must have the same attitude and perception toward using ICT to improve agricultural extension performance.

Based on research by Ayisi Nyarko & Kozári (2021) entitled "Information and communication technologies (ICTs) usage among agricultural extension officers and its impact on extension delivery in Ghana," ICT tools are used mainly by extension workers only to communicate with friends or family. However, in Indonesia itself, there is a new program, namely Kostratani. Kostratani is the center for agricultural development at the sub-district level, which is the optimization of the duties, functions, and roles of BPP by utilizing information technology in realizing national food sovereignty. With the initiation of this program, there is a possibility that there will be a change in the pattern of ICT use in Indonesia, especially in South Sulawesi Province. Therefore, the authors are interested in identifying patterns of ICT use in several Agricultural Extension Centers (BPP) in South Sulawesi Province.

Studies examining the use of ICT in developing countries have identified factors that contribute to its use, including demographic characteristics (4) and contextual factors (Dulle & Alphonce, 2016). However, several studies have examined factors related to motivation, attitudes, and perceptions (6). Based on this, the authors are interested in adopting the theory further in this research. That is, the author wants to find out whether these factors contribute significantly to the formation of extension workers' perceptions of the use of ICT at Agricultural Extension Centers (BPP) in three districts in South Sulawesi Province.

ICT can facilitate the rapid delivery of information and knowledge sharing among farmers, extension workers, and other stakeholders, such as research institutions, to facilitate any parties (Annor-Frempong, Kwarteng, Agunga, & Zinnah, 2006). However, Hoffmann et al. (2009) argue that individuals form perceptions about the environment or circumstances based on several factors. Experience, values, needs, and norms shape human perceptions of technology's suitability to achieve targets or

expectations. Different experiences and needs give rise to different perceptions of the application of ICT. So based on this, researchers are interested in researching how extension officers at the Agricultural Extension Center (BPP) perceive the use of ICT.

Individual factors such as age and education affect the use of ICT. In addition, individual motivation and attitudes towards using ICT for utilization in extension performance and the perceived trust of the community where the service is provided have been identified as having an impact (4). Verdegem & Marez (2011) emphasize the importance of a thorough understanding of user attitudes and preferences towards ICT before implementing an ICT program to increase the success and impact of the program to increase the job responsibilities successfully of use from Saravanan (2010) show the importance of focusing or awareness of responsibility for those who use technology in the context of theirs. Organizational characteristics such as budget allocation, availability of communication networks, and consistent electrical power prevent organizations from reaping ICT's full potential (Saravanan, 2010). The findings of the study (Jamil, M.H., 2017) show that the development of agricultural extension workers has a positive effect on the agricultural extension program.

Furthermore, contextual factors such as the availability of relevant information that stimulates the demand for knowledge play a role in implementing ICT (10). As outlined above, many factors contribute to the use of ICT. However, Hoffmann, Gerster, Christinck, & Lemma (2009) argues that it is not the totality of factors but what is felt by individuals that influence their behavior. In other words, it is their subjective perspective that plays a role. They also argue that individuals form perceptions about the environment or circumstances based on current information about the environment, previous knowledge or experience, and future anticipations. Experience, values, needs, and norms shape human perceptions of technology's suitability to achieve targets or expectations. Meijer et al. (2015) argue that although intrinsic factors play a crucial role in the uptake of innovation, there still needs to be more research looking at these factors. The concept that aims to understand something to perform certain behaviors takes individual perception as an essential component. It was also explained that behavior is a function of the interaction between the individual and the environment he feels.

The Theory of Planned Behavior (TPB) offers a framework for predicting human behavior and explaining the antecedents of attitudes, subjective norms, and perceived behavioral control, which ultimately determine intentions and actions. According to this theory, attitudes describe favorable or unfavorable personal evaluations of a behavior (e.g., positive or negative attitudes of extension professionals towards using ICT in EMBs). Perceived behavioral control describes what is felt from the facilitating and inhibiting factors to perform a behavior. Although TPB is mainly used for quantitative research, these three concepts can provide a valuable structure in qualitative research to explore the reasons underlying behavior or intention, including experiences and attitudes at a more prosperous and deeper level (11)

The author chose the title "Perceptions of Information Communication Technologies (ICT) and Its Use in Agricultural Extension" as an adoption from previously mentioned studies. Overall, there is a common perception of ICT that it is considered effective in disseminating the information needed by farmers on time. However, its application still needs to be improved with different factors in each region. Extension officers' perceptions also greatly influence the use of ICT in agricultural extension. The lack of awareness of extension agents causes ICT to be used only as a means of communication with friends or family rather than as a means of disseminating information and developing the performance of agricultural extension workers. Verdegem & Marez (2011) emphasizes the importance of understanding user attitudes and perceptions to maximize the effectiveness of ICT in different contexts. Is there a common perception by extension agents in Indonesia regarding using ICT in the agricultural extension? Therefore, the authors are interested in knowing the conditions of use and perceptions of ICT extension workers based on the views of agricultural extension workers in Indonesia, especially in South Sulawesi Province.

Based on the formulation of the problem above, this study aims to identify ICT use patterns in Agricultural Extension Centers (BPP) in South Sulawesi Province. Analyze what factors influence extension workers' perceptions of ICT use at Agricultural Extension Centers (BPP) in South Sulawesi Province, and analyze extension workers' perceptions of ICT use at Agricultural Extension Centers (BPP) in South Sulawesi Province.

MATERIAL AND METHODS

This research was conducted at Agricultural Extension Centers (BPP) in five sub-districts in Maros, Pangkep, and Jeneponto Regencies, South Sulawesi Province. The choice of location for this research was purposive based on the consideration that the five BPPs in the three regencies are areas where most of the people work as farmers. This research was conducted from December 2021 to May 2022. The data collection techniques used in this research were observation, questionnaires, and interviews. Qualitative data is processed descriptively, while quantitative data is processed using Structural Equation Modeling (SEM) analysis using Linear Structural Relationship (PLS) 3.0.

The primary data in this study were obtained from interviews with informants using pre-prepared questionnaires to find patterns of ICT use, contributing factors, and the perception of extension workers at each BPP on the use of Information Communication Technologies (ICT). The secondary data used in this study were obtained from the five Agricultural Extension Centers (BPP). In this study, the determination of the sample using a proportional stratified random sampling technique, using the Slovin formula with a precision value of 10% (0.1).

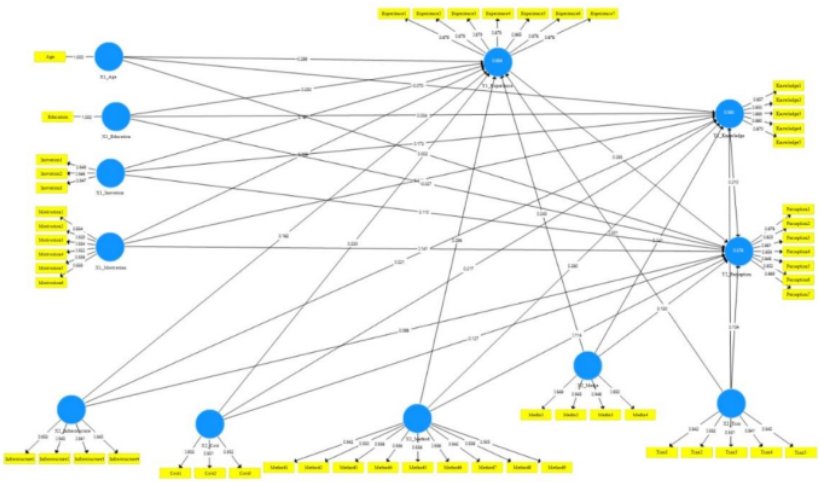
RESULTS AND DISCUSSION

3.1 Outer Model Evaluation (Measurement Model): Validity and Reliability

3.1.1. Convergent Validity Test

Convergent Validity is part of the measurement model, which in SEM-PLS is usually referred to as the outer model. At the same time, Covariance-based SEM is called Confirmatory Factor Analysis (CFA) (Mahfud & Ratmono, 2013). There are two criteria for assessing whether the outer model (measurement model) meets the convergent validity requirements for reflective constructs, namely (1) the loading must be above 0.7 and (2) the p-value is significant (<0.05) (Hair et al. in Mahfud & Ratmono, 2013). However, loading requirements above 0.7 are often not met in some cases, especially for newly developed questionnaires. Therefore, loading between 0.40-0.70 must still be considered for maintenance (Mahfud & Ratmono, 2013).

Indicators with loadings below 0.40 should be removed from the model. However, for indicators with loading between 0.40 and 0.70, we should analyze the impact of removing the indicator on the Average Variance Extracted (AVE) and Composite Reliability (CR). We can remove indicators with loading between 0.40 and 0.70 if these indicators can increase the Average Variance Extracted (AVE) and Composite Reliability above their threshold (Mahfud & Ratmono, 2013). The limiting value of AVE is 0.50, and CR is 0.7. Another consideration in removing indicators is their impact on construct content validity. Indicators with small loadings are sometimes retained because they contribute to the Validity of the constructed content (Mahfud & Ratmono, 2013). The following are the calculation results of the PLS-SEM model and the loading factor values of the indicators for each variable which are presented in the form of tables and figures as follows:



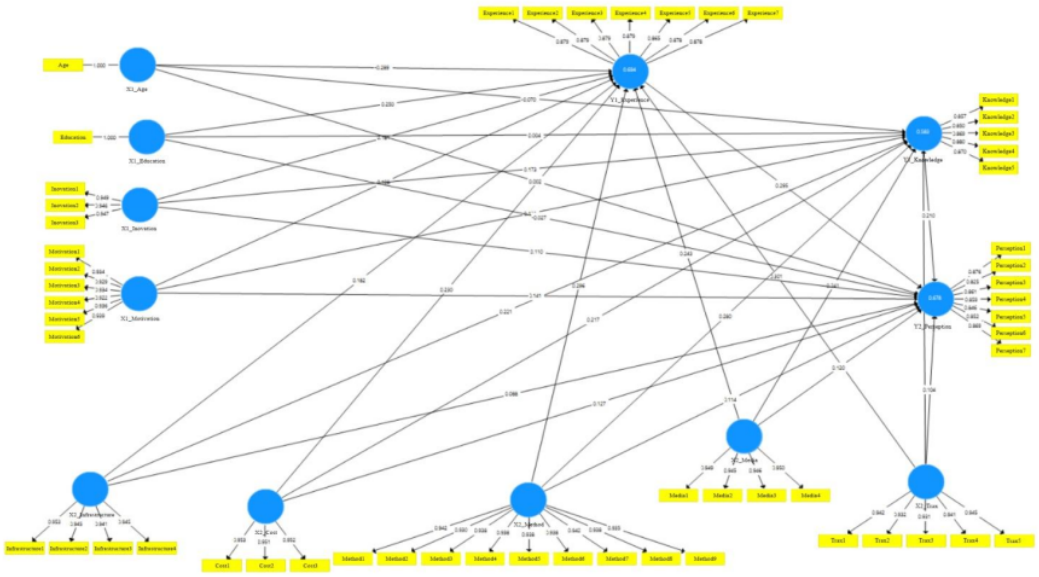


Figure 1. PLS Algorithm Results Display Validity Test Based on Factor Loading

Based on the validity test of factor loading in table 7 and figure 4, it is known that all indicators of each variable have a loading value greater than 0.7. It shows that all indicators of each variable in the outer model have a high level of validity to meet the requirements of convergent validity. In addition, no indicators are eliminated/dropped from the model because there are no indicators with a loading value of less than 0.7 or have a low level of validity, no indicators are eliminated/dropped from the model.

3.3.2. Average Variance Extracted (AVE) Test

The validity test can also be based on the Average Variance Extracted (AVE) value. In addition, the AVE value is also needed in calculating or determining discriminant validity. Following are the results of validity testing based on the Average Variance Extracted (AVE) value presented in the form of tables and graphic images as follows:

Tabel 2. Validity Testing based on Average Variance Extracted (AVE)
Variance Extracted (AVE)

	Average Variance
X1_Inovation	0
X1_Motivation	0
X1_Education	1
X1_Age	1
X2_Cost	0
X2_Infrastructure	0
X2_Media	0
X2_Method	0
X2_Trax	0
Y1_Experience	0
Y1_Knowledge	0
Y2_Perseption	0

The recommended AVE value is above 0.5 (Mahfud & Ratmono, 2013). In the table above, all AVE values for each variable are more significant than 0.5. In

addition, it can also be seen in the attached graph that all variables have graphs that have passed the minimum limit of 0.5 to meet the validity requirements based on the AVE value.

3.3.3. Discriminant Validity Test

Discriminantis validity test used to ensure that each concept of each latent variable construct differs from other variables. In this study, the discriminant validity was tested using the Fornell-Larcker approach. It is said to meet the requirements of discriminant validity if the AVE square root value of a latent variable is greater than the correlation value between the latent variable and other latent variables. The results of the discriminant validity test are presented in table form as follows:

Tabel 3. Discriminant Validity Testing

	X1_Inovation	X1_Motivation	X1_Education	X1_Age	X2_Cost	X2_Infrastructure	X2_Media	X2_Method	X2_Trax	Y1_Experience	Y1_Knowledge	Y2_Persepsion
X1_Inovati	0,657638889											
X1_Motiva	0,089583333	0,647222222										
X1_Education	-0.106	0,394	1,000									
X1_Age	-0.181	0,195833333	0,30208333	1.000								
X2_Cost	0,096527778	0,088194444	0.058	0.082	0,661111111							
X2_Infrast	0,085416667	0,071527778	0,08472222	0.057	0,097916667	0,65694444						
X2_Media	0.094	0,072916667	-0.026	-0.030	0.088	0,09513888	0,65763					
X2_Metho	0.084	0,078472222	0.086	0,135416667	0,069444444	0,09236111	0.097	0,65				
X2_Trax	0.094	0,099305556	0,0875	0,195138889	0.086	0,07013888	0.084	0,08	0			
Y1_Experi	0,252083333	0,270138889	0,19097222	0.007	0,259722222	0,25972222	0,26527	0,28	0	0,608333		
Y1_Knowl	0,234027778	0,230555556	0,08194444	0,072916667	0,251388889	0,26736111	0,26180	0,28	0	0,523611	0,6006	
Y2_Persep	0,255555556	0,274305556	0,11180555	0.098	0,270138889	0,25277777	0,26458	0,27	0	0,523611	0,5041	0,

In testing discriminant validity, a latent variable's AVE square root value is compared with the correlation value between that latent variable and other latent variables. It is known that the AVE square root value for each latent variable is greater than the correlation value between the latent variable and other latent variables. So it is concluded that it meets the requirements of discriminant validity.

3.3.4. The Composite Reliability test and Cronbach's Alpha

Outer models are not only measured by convergent validity values but discriminant validity can also be done by looking at construct reliability or latent variables measured by looking at Composite Reliability (CR) values and Cronbach's Alpha (CA) values. Reliability relates to the precision and accuracy of measurements. Reliability testing was conducted to test whether the data obtained from the research instrument showed adequate internal consistency. Values Composite Reliability can be seen in the table and graphical images as follows:

Table 4. Reliability Testing based on Composite Reliability (CR)

	Composite Reliability
X1_Inovation	0,66875
X1_Motivation	0,677777778
X1_Education	1.000
X1_Age	1.000
X2_Cost	0,671527778
X2_Infrastructure	0,674305556
X2_Media	0,675
X2_Method	0,684027778
X2_Trax	0,675694444
Y1_Experience	0,665972222
Y1_Knowledge	0,650694444
Y2_Perseption	0,659722222

The recommended CR value or the reliability requirement is above 0.7 (Mahfud & Ratmono, 2013). In the table above, all CR values for each variable are more significant than 0.7. In addition, it can be seen from the attached graph that all variables have graphs that have passed the minimum limit of 0.7 to meet the reliability requirements based on the composite reliability. Furthermore, was carried out reliability testing Cronbach's Alpha (CA). Values Cronbach's Alpha can be seen in the table and graphical images as follows:

Table 5. Reliability Testing based on Cronbach's Alpha (CA)

	Cronbach's
X1_Inovation	0.94
X1_Motivation	0.97
X1_Education	1.00
X1_Age	1.00
X2_Cost	0.94
X2_Infrastructure	0.96
X2_Media	0.96
X2_Method	0.98
X2_Trax	0.96
Y1_Experience	0.95
Y1_Knowledge	0.91
Y2_Perseption	0.93

The recommended CA value is above 0.7 (Mahfud & Ratmono, 2013). In the table above, all CA values for each variable are more significant than 0.7. In addition, it can also be seen in the attached graph that all variables have graphs that have passed the minimum limit of 0.7 to meet the reliability requirements based on Cronbach's Alpha (CA) value.

3.4 Evaluation of the Inner Model and Bootstrapping

A. Value R-Square

Value R-square (R2) is used to assess how big or strong the influence of certain independent latent variables is on the latent dependent variable.

Table 6. Value R-Square in the Inner Model

	R
Y1_Experience	0,694
Y1_Knowledge	0,583
Y2_Perception	0,678

Based on the table above, it is known that the R-square value for the Experience construct (Y1) is 0.694 and Perception (Y2) is 0.678, which means that the calculation results for the construct or model variable are good/firm. The knowledge construct (Y1) has an R-square value below 0.67 but not less than 0.33, indicating that the construct or model variable is moderate or moderate.

B. Bootstrapping Results

Testing each relationship or effect is carried out using a simulation using the bootstrapping method for the sample. This test aims to minimize the problem of abnormal research data. The test results with the bootstrapping method from the PLS-SEM analysis are as follow:

Table 7. Significance Test of Influence (Bootstrapping)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
X1_Inovation -> Y1_Experience	0,125694444	0,126388889	0.067	2.720	0.007
X1_ Inovation -> Y1_Knowledge	0,120138889	0,125	0.067	2.574	0.010
X1_ Inovation -> Y2_Perseption	0,076388889	0.047	0,086111111	0,613888889	0,261805556
X1_Motivation -> Y1_Experience	0,1375	0,136111111	0.088	2.245	0.025
X1_ Motivation -> Y1_Knowledge	0,127083333	0,134027778	0.062	2.958	0.003
X1_ Motivation -> Y2_Perseption	0,097916667	0.075	0,088194444	1.104	0,1875
X1_Education -> Y1_Experience	0,173611111	0,177777778	0,127083333	1.367	0,119444444
X1_ Education -> Y1_Knowledge	0.004	0.012	0,082638889	0.036	0,674305556
X1_ Education -> Y2_Perseption	-0.027	-0.027	0.061	0,309722222	0,455555556
X1_Age -> Y1_Experience	-0.289	-0.291	0,111111111	1.808	0.071
X1_ Age -> Y1_Knowledge	-0.070	-0.079	0,075694444	0,445833333	0,361805556
X1_ Age -> Y2_Perseption	0.002	0.011	0.059	0.036	0,674305556
X2_Cost -> Y1_Experience	0,159722222	0,158333333	0.058	3.939	0.000
X2_ Cost -> Y1_Knowledge	0,150694444	0,156944444	0.078	2.795	0.005
X2_ Cost -> Y2_Perseption	0,088194444	0.059	0,086805556	1.014	0,215972222
X2_ Cost -> Y1_Experience	0,126388889	0,127777778	0.076	2.402	0.017
X2_Infrastructure ->	0,153472222	0,159027778	0.070	3.142	0.002
X2_Infrastructure -> Y2_Perseption	0.088	0.021	0,086111111	0,49375	0,331944444
X2_Media -> Y1_Experience	0,16875	0,16875	0.065	3.742	0.000
X2_Media -> Y1_Knowledge	0,167361111	0,168055556	0.073	3.285	0.001

X2_Media -> Y2_Perseption	0,083333333	0.046	0,094444444	0,613888889	0,261805556
X2_Metode -> Y1_Experiences	0,205555556	0,204861111	0.066	4.473	0.000
X2_Metode -> Y1_Knowledge	0,194444444	0,195833333	0.091	3.078	0.002
X2_Metode -> Y2_Perseption	0,079166667	0.037	0,109722222	0,502083333	0,326388889
X2_Trax -> Y1_Experiences	0,209027778	0,207638889	0.063	4.780	0.000
X2_Trax -> Y1_Knowledge	0,184027778	0,186805556	0.086	3.085	0.002
X2_Trax -> Y2_Perseption	0,072222222	0.029	0,095138889	0,527777778	0,311111111
Y1_Pengalaman -> Y2_Perseption	0,204861111	0,295833333	0,277777778	0,513194444	0,319444444
Y1_Pengetahuan -> Y2_Perseption	0,145833333	0,207638889	0,202777778	0,499305556	0,327777778

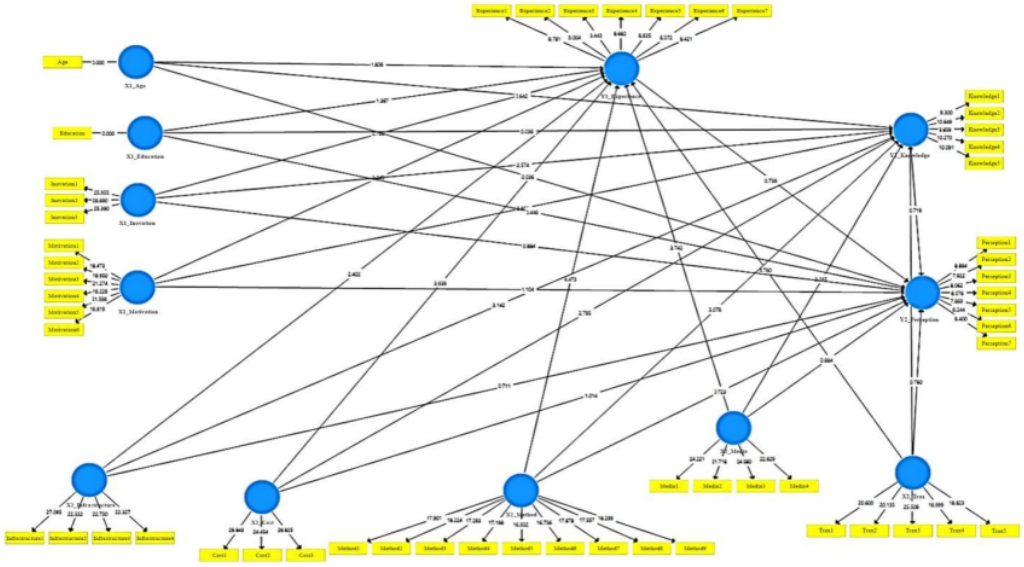


Figure 2. Test of Significance of Influence (Bootstrapping)

Based on table 13, it can be concluded as follows:

1. Innovation has a positive effect on experience, with a path coefficient value (Original Sample column) = 0.181, and significant, with a P-Values = 0.007 < 0.05.
2. Innovation has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.173, and significant, with a P-Values = 0.010 <0.05.
3. Innovation has a positive effect on perception, with a path coefficient value (Original Sample column) = 0.110, but insignificant, with a P-Values = 0.377 > 0.05.
4. Motivation has a positive effect on experience, with a path coefficient value (Original Sample column) = 0.198, and significant, with a P-Values = 0.025 <0.05.
5. Motivation has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.183, and significant, with a P-Values = 0.003 <0.05.
6. Motivation has a positive effect on perception, with a path coefficient value (Original Sample column) = 0.141, but insignificant, with a P-Values = 0.270 > 0.05.
7. Education has a positive effect on experience, with a path coefficient value (Original Sample column) = 0.250, but insignificant, with a P-Values = 0.127 > 0.05.
8. Education has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.004, but not significant, with a P-Values = 0.971 > 0.05.
9. Education hurts perception, with a path coefficient value (Original Sample column) = -0.027, but insignificant, with a P-Values = 0.656 > 0.05.

10. Age has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.002, insignificant, with a P-Values value = 0.521 > 0.05.
11. Age has a positive effect on perception, with a path coefficient value (Original Sample column) = 0.230, but insignificant, with a P-Values = 0.971 > 0.05.
12. Cost has a positive effect on experience, with a path coefficient value (Original Sample column) = 0.230, and significant, with a P-Values = 0.000 <0.05.
13. Cost has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.217, and significant, with a P-Values = 0.005 <0.05.
14. Cost has a positive effect on perception, with a path coefficient value (Original Sample column) = 0.127, but insignificant, with a P-Values = 0.311 > 0.05.
15. Infra has a positive effect on experience, with a path coefficient value (Original Sample column) = 0.182, and significant, with a P-Values = 0.017 <0.05.
16. Infra has a positive effect on knowledge, with a path coefficient value (Original Sample column) = 0.221, and significant, with a P-Values = 0.002 <0.05.
17. Infra has a positive effect on perception, with a path coefficient value (Original Sample column)=0.088, but insignificant, with a P-Values = 0.478 > 0.05.

IV. CONCLUSION

1. Patterns of ICT use in the audience orientation dimension, especially in the selectivity section, most extension workers at the Agricultural Extension Center (BPP) use smartphones more frequently in their utilization of ICT media. This media is used more often because the most significant percentage of the use of counseling methods is the telephone connection method.
2. Age, infrastructure, financing, motivation, and innovation in the use of ICT positively affect the perception of ICT users. Meanwhile, education hurts user perceptions. However, all variables have no significant effect on perceptions because the P-values are more excellent than 0.05
3. User perceptions of ICT are very positive, as indicated by awareness of the importance of using ICT itself. However, it needs to be supported by several factors, for example, uneven distribution of funds from the government as well as inadequate infrastructure, which affects motivation and innovation in using ICT tools.

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