

## **ESTABLISH THE PERCEPTION OF AGRICULTURAL EXTENSION WORKERS THROUGH CYBER EXTENSION AS THE MEDIA INFORMATION**

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**ABSTRACT.** The cyber extension has a significant media in developing an extension program of agricultural information. The government has built the cyber extension supported by the development of ICT and its utilization in the dissemination of agricultural information. It is expected to provide positive benefits in the improvement of competence of the extension workers. The purpose of this research is to analyse the characteristics and perception of the extensions workers in the utilization of cyber extension to support their work. This research is correlational descriptive analysis by using survey method. The study was conducted in South Manokwari Regency, West Papua Province. The sample in the research was all extension workers as many as 22 people. The result shows that the characteristics of the extensions workers as follow: the media used is a smartphone (100%), the working period is 5-10 years (77%) and the education level is high school (SMK/SPMA, 73%). Meanwhile, the perception of the extension workers on the cyber media is high. It reaches 95%. They provide the positive perception on cyber extension concerning variables of benefit, complexity, and convenience.

Keywords: *smart phone, training, farmer, rural, Manokwari*

JEL Classification: D80, Q16

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### **INTRODUCTION**

Information communication and technology (ICT) grows very fast. The Information technology provides many varieties of alternative ways and procedures to help human needs. Therefore, everyone needs to follow the development of the technology and develops creativity dealing with the problems in various fields. This development also influences the paradigm shift in the field of agricultural extension to provide information to the public. The access to information can be obtained in the short time and quickly now.

Today, farmers commonly show an increase in knowledge, skills, skills and critical attitude towards

agricultural development. This is demonstrated by the demand for the quality extension services to farmers. This condition certainly requires the needs of agricultural extension workers who have competence based on the knowledge and skills according to their respective fields (Pramono, Fatchiya and Sadono, 2017).

So far, the problem often faced by the farmers in rural areas is the low availability of new information and as needed. So much information is available over the internet. This information can be useful as the first step to understand the problem which is then followed up with a solution (Anonymous, 2014). The provision of this information needs to be well managed. The extension workers, farmers, and stakeholders can learn to use this information to be more useful. Furthermore, the information technology can encourage farmers to build personal communication more easily, quickly, and accurately. The information availability can also

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create technological innovations in agriculture and its supporting services.

A cyber extension is one of the mechanisms of development of network communication, information and innovation in the agriculture sector that is developed by the government. The cyber extension is also intended for implementing the information and communication technology in the communication system of agricultural extension. The cyber extension has a synergistic and complementary role to bridge the needs of farmers and stakeholders through the communication mechanism of agricultural innovation (Sumardjo et al., 2009). There are some benefits of the cyber extension, for example, providing information for extension workers, farmers, and planters; and providing information to see how the development of the cocoa plant, in term of demand, cultivation, harvesting and transaction mechanisms.

The barriers in the access to ICT by the extension workers and farmers are still very significant. These constraints include a low in skills, gaps in understanding information, not familiar with ICT, and the expense of technology.

The advantages of using cyber extension communications are the sustainable availability of information, the access to the international needs, the user-oriented, the personalized manner, the effective and fast cost. Today, the most relevant in communication model is the use of cyber extensions. It is a strategic medium in extension practice to improve the accessibility of information to farmers, extension workers, researchers, suppliers and other stakeholders (Subejo, 2013).

Cyber Extension is one of the communication channels that synergizes the application of information technology with the various communication system via internet. One of the utilization of cyber extensions is through mobile phones and computer media. According to Subejo (2013), the application of conventional extensions methods, such as face-to-face, group meetings, leaflets, and field schools are no longer adequate.

Commercialization of agricultural commodities has become a primary need for sustainable production. The flow of benefits from the marketing of farm products provides farmers with incentives

to stimulate and develop their business. The issue of commercialization requires fast information and innovative services through the utilization of cyber extensions.

This research aims to study the characteristics of the extension workers and its perception in the utilization of cyber extension to support its task.

## RESEARCH METHOD

The research design used was a mixed method which is a combination of qualitative and quantitative research approach (Sugiyono, 2014). The strategy of mixed methods used was the concurrent embedded strategy (Creswell, 2014). The data collection was conducted by survey method. Two districts of South Manokwari Regency of West Papua Province were selected. The survey location was conducted purposely in two largest sub-districts of cocoa production (Dinas Pertanian, 2016). Those regions have received equipment of data processing of cyber extension from the Agriculture Office of South Manokwari Regency.

The study was conducted from November 2016 to February 2017. The population was the extension workers assigned in South Manokwari Regency in West Papua Province. They were the extension workers of permanent civil servants (PNS, *Pegawai Negeri Sipil*) and freelancer (THL-TBPP, *Tenaga Harian Lepas Tenaga Bantu Penyuluh Pertanian*) in South Manokwari Regency. All extension workers (Sugiyono, 2014) who become as the research respondents were 22 people.

The data used are primary data and secondary data. The primary data were associated with the age, education, age of employment and the gadget used. The Perceptual data on the cyber extension included benefits, complexity, convenience, conformity, and expected profit.

The research obtained the primary data through: (i) structured interviews by using questionnaires, (ii) in-depth interviews, (iii) Focus Group Discussion (FGD) and (iv) field observation (Akdon, 2007). The secondary data were gathered through documents and information related to the cyber extension. The analysis method used was a descriptive approach.

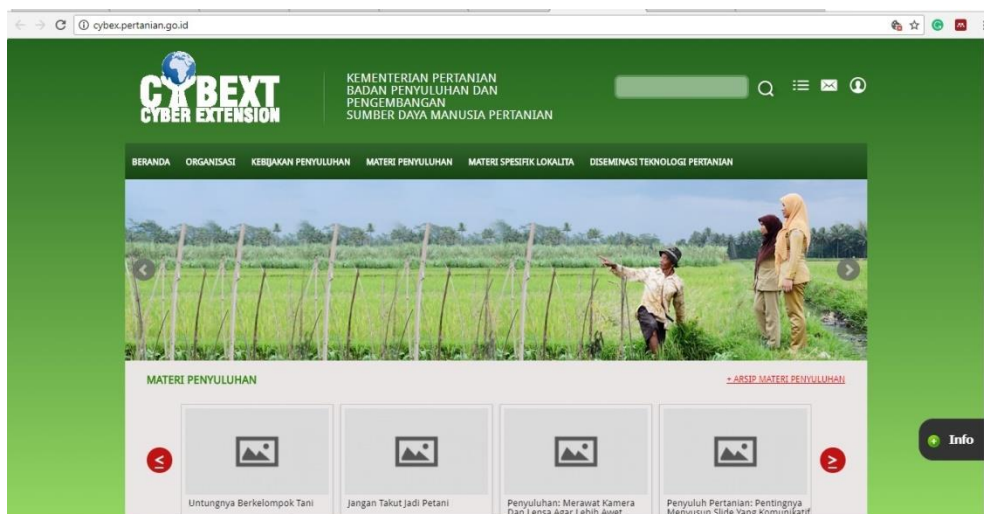


Figure 1. Website of the cyber extension (<http://cybex.pertanian.go.id>)

## RESULT AND DISCUSSION

### Characteristics of Extension Workers

The results show that the characteristics of extension workers vary considerably (Table 1). The extension workers in South Manokwari District are dominantly aged between 40 and 48 years old (59%), high school education (73%), 5-10 years (77%), the positive perception of cyber extension (95%) and smartphone use (100%). These results commonly illustrate that the character of the extension workers is usually adult, middle-educated, do not have much experience in the task, recognize the smartphone, and have a good perception of the cyber extension.

The extension workers have been very familiar with communication technology and information and its benefits as the source of information that supports the task. 13 form the 22 extension workers who are adults are estimated to be very active in utilizing smartphones for accessing to the internet, especially information about agriculture.

The use of the smartphone is expected to increase the knowledge of extension workers with various sources of agricultural information from the internet, and is ready to be transferred to the farmers. Therefore, although they do not have much experience, then the role of smartphones or

laptop can help them to improve their insight and competence in absorbing better information. In Garut, the skill of extension workers is generally in the low category (Pramono, Fatchiya, and Sadono, 2017). To solve these problems, the extension workers are expected to be able to access cyber extension and utilize it to support knowledge transfer.

Table 1. Characteristics of Extension Workers

Characteristics	Criterion	Number	Proportion
Age	30-39	7	31.8
	40-48	13	59.1
	49-57	2	9.1
Education	High school	16	72.7
	Diploma-3	2	9.1
	Diploma-4	1	4.6
	Und'graduate	3	13.6
Working period	5 - 10 year	17	77.3
	11 - 15 year	4	18.2
	16 - 20 year	0	0.0
	> 20 year	1	4.5
Extensionist's perception	High	21	95
	Low	1	5
Gadget used	Smart phone	22	100
	Laptop	13	59

The result of the research also shows that there are many workers who do not utilize Cyber extension optimally. The extension workers have not used an integrated and comprehensive web-based agriculture information system yet. They still

use a conventional media such as Sinar Tani (Sinta), TV broadcasts, or books. The cyber extension is one of the extension media that can be used to assist extension workers in developing extension materials.

Therefore, the conventional and cyber approaches will complement each other. The convergence of two approaches can be created and presented to meet the information needs of the farmers. Currently, the use of the cyber extension can be accessed through Information System Application of Information (Simluh) and Farmers Information System and Farmer Group (Simpoktan) (Figure 1) (Kementerian Pertanian, 2018)

The cyber extension is an agricultural information exchange mechanism through the cyber area, an imaginary virtual space behind the interconnection of computer networks. The use of ICT is more effective and efficient in the implementation of agricultural extension so that the

process of transformation of knowledge to the farmers always be up to date. In addition, all users can also interactively share information and knowledge in the application system provided.

The use of cyber extension is very effective in implementing an agricultural extension program supported by national and international information network, expert system, and multimedia learning system. A computer-based training system in the cyber extension can improve information access to the farmers, extension workers, scientists, researchers and extension manager.

The ICT will increase both the reach and the two-way interaction between the key stakeholders. The ITC offers a wider new opportunity and greater potential. This not only adds interactivity, but also adds speed, two-way communication, and increases the deeper message. It will also extend coverage and improve the quality of agricultural extension.

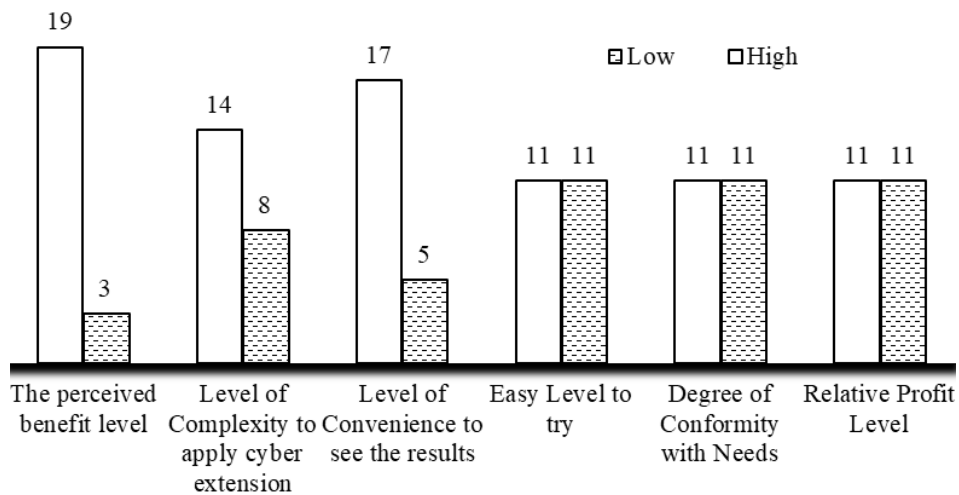


Figure 2. Perceptions of the extension workers on the cyber extension

The cyber extension should be used carefully, so it is not to replace the existing communication system (<http://cybex.pertanian.go.id/>). Oral communication needs to be constantly developed to build togetherness, recognize deeper needs, touch the psychology of the audience to solve the problem thoroughly.

**Perception of Extension Workers**

In this study, the extension workers' perception of the cyber extension was analysed through six variables, including perceived benefit, complexity, convenience, ease, conformity, and perceived profit (Figure 2). Figure 2 shows that extension workers provided a positive perception of the first three variables namely benefits, complexity, and

convenience. From the 22 extension workers interviewed, 19 people stated that the cyber extension is useful; 14 people stated that the cyber extension is relatively complex; and 17 people said that the cyber extension provides the sense of comfort.

Meanwhile, the other three variables show the neutral perception. In the perception of ease, suitability, and expected profit, the number of extension workers who have high or low perception responses is the same (11 of 22 people). This means that the extension workers do not provide a significant response to the cyber extension perceived.

In general, the results are in accordance with Table 1, where the extension officers' perceptions are very enthusiastic (95%) on the cyber extensions (Table 1). This indicates that the extension workers already recognize the internet or the use of ICT. This is also in line with the result of the study in Garut, which states that the extension workers have been very familiar with ICT (Pramono, Fatchiya, and Sadono, 2017).

The positive perceptions of the cyber extension will change the perspective way in obtaining information. It needs to be created dynamics in the life of extension workers to improve insight and competence, thus by providing the positive perception of cyber extension.

The perception certainly cannot be seen statically. The perception of extension workers on cyber extension has a close relationship with the experience of understanding ICT and its benefits. The following can build a positive perception on the cyber extension.

- i. Experience in using the internet via computer, laptop or internet smartphone. This experience can be built through discussions with the fellow extension workers. They will recognize which source of information is good and desired.
- ii. Intensity and quality of extension by using communication media and information. The higher the communication behaviour related to ICT-based information sources, the more the need for information through the internet increase. The Internet is a rich source of information, which should be exploited by

extension workers, farmers for their progress (Chauhan, 2010).

- iii. Extension workers who often follow the training have an advantage in knowing the information from the internet. This opens the opportunity for extension workers to understand the cyber extension. The workers then run a self-taught lesson to improve his insights and skills.
- iv. High motivation of extension workers to carry out their duties can build positive perceptions about cyber extension and utilization of ICT. The motivation makes them actively communicate, improve knowledge and seek information using ICT. ICTs facilitate communication and access to information for agricultural and rural development. The policy on agricultural development is implemented through relevant ICT applications to support agricultural extension (Nandeeshha and Thimmaiah, 2016).

The role of extension workers is very strategic. The extension workers can function as informants, as well as synergize cyber extension applications as the source of information and potential communication. Through the cyber extension, the extension workers are also exposed to various choices of communication and information media. The internet has become a decisive force for the extension workers in obtaining information.

The information media serve as the tool that empowers people. The media also facilitate community participation and provide avenues for the development of the agricultural sector. The cyber extension program launched by the government is expected to promote sustainable development of rural areas. Media communication has an important role in the transformation process. According to Wilbur Schramm, the role of media in development includes; inform, direct and participate (Vagdevi et al., 2016).

In general, the ICT has helped shift the paradigm in the use of communication technology between the extension workers and community. The youths become active participants in the communication process. Smartphones are more accessible than a computer for accessing the internet. The availability of internet on the smartphone makes it even more interesting. Smartphones have changed the concept of social

relationships through the features of social media. Most people use smartphones to communicate, share ideas, thoughts, dan beliefs (Drengy, 2017).

### CONCLUSION AND SUGGESTION

The extension workers in South Manokwari Regency show the following characteristics: the age of 40-48 years (59%), high school education (73%), 5-10 years (77%), the positive perception of cyber extension (95 percent) and they use the smart phone (100%). In general, this indicates that the extension workers have recognized the internet or the use of ICT.

The extension workers have diverse perceptions on the cyber extension. They provide the positive perception on the variables of benefit, complexity, and convenience. From 22 extension workers, 19 people stated that the cyber extension is useful; 14 people declared that the cyber extension is relatively complex, and 17 people said that the cyber extension provides the sense of comfort.

While the ease, match, and profit variables show a neutral perception. This means that the extension workers do not show a significant response related to the perception of the cyber extension.

The extension workers need to improve their competence through activities such as discussion, training, self-learning and motivational improvement in work.

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