

The Use of Communication Technology Channel in Agricultural Development by Muda Agricultural Development Authority (MADA)

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ABSTRACT

Innovation in agriculture is generally defined as the implementation of ideas, products, practices, processes, new services or apparent improvements in certain environments with attention to benefit the society and the individuals within (Rogers, 1995). The use of communication technology as the innovation in the agricultural information delivery channel among farmers is still low especially among the developing countries. This phenomenon has sparked researcher's initiatives to study the agricultural information delivery channel, particularly in agricultural development activities among the farmers under the auspices of Muda Agricultural Development Authority (MADA). This concept paper will be extended as a doctoral research. The Innovation Diffusion Theory and the Unified Theory of Acceptance and Use of Technology (UTAUT) will be used to guide the study. In soliciting the decision-making phase of accepting the innovation, there are a few drawbacks of the channel as it was shown by Innovation Diffusion Theory. The rapid development of communication technology has led to two-way, interactive and easy-access media channel, which previously was highly dependent on conventional media and development agency. The study variables include the relative advantages, the trialability, the suitability, the complexity, and the observability as had been described by Everett. M. Rogers. Additionally, variables such as effort expectancy, performance expectancy, social influences and facilitating condition are taken into account as to facilitate the dissemination of information on the paddy plantation. This study will use quantitative method in which opinions through a questionnaire will be collected while the qualitative method to be used in Focus Group Discussions (FCP) to support the quantitative findings. A total of 400 farmers will be involved as the respondents of the study. The quantitative data will be analysed using SPSS Version 21 and the qualitative data will be analysed using Envivo software. The study is expected to improve the use of communication technology channel in paddy plantation to gain better and more knowledge on paddy plantation in order to increase rice production.

Keywords: Innovation; channel; paddy plantation.

1.0 INTRODUCTION

Agricultural development in general is one of the most important branches of effort made by the agricultural agencies to disseminate information to the farmers in order to help to improve their productivity and their well-being. Agricultural development can be defined as a system of informal education that provides advices through educational processes to help clients to increase the knowledge and the skills whenever they need or whenever they have problems in the context of socio-economic (Bahaman, Jegak, Khadijah, 2009).

Agricultural development is indeed crucial in providing agricultural information such as in the areas seed planting, fertilizer types and appropriateness, harvesting, selling price, advisory, cultivation techniques, crop treatments, agricultural subsidies, weather reports, new market opportunities, new agricultural technologies, electronic markets (e-market), current issues and current affairs in the agricultural sector (Solomon, Calvin, Edward, Kevin, 2011).

The rapid development of communication technology has led many individuals to changing their ways to get information to be more innovative, fast and interactive, regardless of time and global reach. The agricultural development, particularly paddy plantation related activities, the farmers are mostly still practicing the use of the conventional media channels and the interpersonal communication (the development agency) in obtaining information on paddy planting activities, right from the ground-leveling process until the harvesting process. Such information is crucial to be channelled to the farmers in order to secure a good yield and good quality due to the known status of rice being the staple food of the country. Thus, innovation-embedded channels of communications technology are highly required to be used by the farmers in order to improve their plantation and their productivity.

2.0 PROBLEM STATEMENT

The research will look into Rogers' (1981) focus which was related to the process of general acceptance of adopting innovations to the society which is based on the Innovation Diffusion Theory. At the persuasion phase of deciding to adopt innovation, there are five innovation characteristics, namely relative advantages, compatibility, complexity, trialability and observability which are described as the most influential variable in the process to adopt an innovation. However, there are some typical weaknesses in terms of communication channels that along side the rapid development of communication technology

nowadays, information channels on agricultural innovation is no longer confined to the mass media and development agencies (Syenna, 2010; Ismail, 2006). The latest communication technology channel that is more bilateral in nature, combining public communication and interpersonal communication, fast, interactive, easily accessed at all time, is expected to be highly influential in persuading the farmers to receive innovation agricultural information (Heather 2014).

Meanwhile, the Innovation Diffusion Theory also has a disadvantage as it is not suitable to be used in all conditions and situations, that certain innovations are adoptable by certain individuals and communities only (Moore & Benbasat, 1996). Past studies on adoption of innovations find many useful innovations shortcomings in this theory as there are other factors that also affect individuals in the process to adopt innovations such as age, educational background, computer literacy, social status and economic status (Montazemi, Ali, Saremi, Hamed, 2013). Is the adoption of information innovation in paddy plantation being useful to the farmers in this country as suggested in the Innovation Diffusion Theory? Use of mass media or better known as the conventional media is one-way in nature, uncreative and rigid. With the latest communication technology that is interactive, animated and dynamic, the conventional media's role in agricultural development activities is increasingly challenged for its effectiveness. Publishing materials on agricultural development through the latest communication technology can help to attract the target audience to change the channel of communication technology to become more efficient. Therefore, this study will also use the *Unified Theory of Acceptance and Use of Technology (UTAUT)* to accommodate the shortcomings found in the *Innovation Diffusion Theory*. This theory explains that the acceptance of the innovation or technology is dependent on the performance expectancy, effort expectancy, facilitating condition and social influences (Venkatesh et al, 2003). The four variables play an important role in determining the extent of the use of the latest communication technology channel in agricultural development activities among the farmers. The impetus for this research is to find out the extent of information delivery of paddy plantation that can be channelled through the latest communication technology to ensure effective and efficient use of the channel. This focus is particularly important in persuading farmers to use the channel in finding agricultural information. According to Regina (2010), the selection of the right channel is an important factor in the process for the farmers to use the agricultural information. Previous studies that focused on the use of new media in agricultural extension studies also suggest that studies on the application and the impact of the growing use of the new media's should be done. (Jock & G. Feder, 2003; Jock & G. Feder, 2010). Although there are many studies about the innovation adoption in agriculture, but research specifically on

the use of channel of communication technology is minimal, especially in the context of agricultural development in Malaysia (Reza Salleh, Saadat, Behrooz, Megat, 2012).

3.0 RESEARCH QUESTIONS

1 What is the pattern of the use of communication technology channel in agricultural development activities of the farmers?

2 What is the correlation of the variables such as relative advantages, compatibility, trialibility, complexity, observability, performance expectancy, effort expectancy, social influences and facilitating condition, in the use of communication technology channels in agricultural development activities by the farmers?

3 How does the demographic factor such as social status, economic status, age, education background and computer literacy connect to the use of communication technology channels with agricultural development activities with the farmers?

4 What is the contribution of variables such as relative advantages, compatibility, trialibility, complexity, observability, performance expectancy, effort expectancy, social influences and facilitating conditions for the use of communication technology channels in agricultural development activities to the farmers?

4.0 OBJECTIVES OF THE STUDY

1. To identify channels of communication technology usage patterns among the farmers in their agricultural development activities.

2. To identify the relevance of variables such as relative advantage, compatibility, complexity, trialibility, observability, performance expectancy, effort expectancy, social influences and facilitating situation can encourage the use of communication technology channel among farmers in agricultural development activities.

3. To identify the relevance of demographic factors such as social status, economic status, age, education background and computer literacy, to use communication technology channel in agricultural development activities among the farmers.

4. To identify the contribution of variables - variables such as relative advantage, compatibility, complexity, trialibility, observability, performance expectancy, effort expectancy, social influences and facilitating condition on the use of channels of communication technology in agricultural development activities among the farmers.

5.0 SIGNIFICANCE OF THE STUDY

This study is particularly important to identify the relationship between variables such as relative advantage, compatibility, trialability, complexity and observability as set forth in the *Innovation Diffusion Theory* and variables such as performance expectancy, effort expectancy, social influences and facilitating condition as being presented in the *UTAUT*. This is to identify the contribution of the method or the use of communication technology channel that is efficient and effective in delivering agricultural development information. Good and efficient supply and delivery of agricultural information on paddy plantation will increase their knowledge, skills, and productivity.

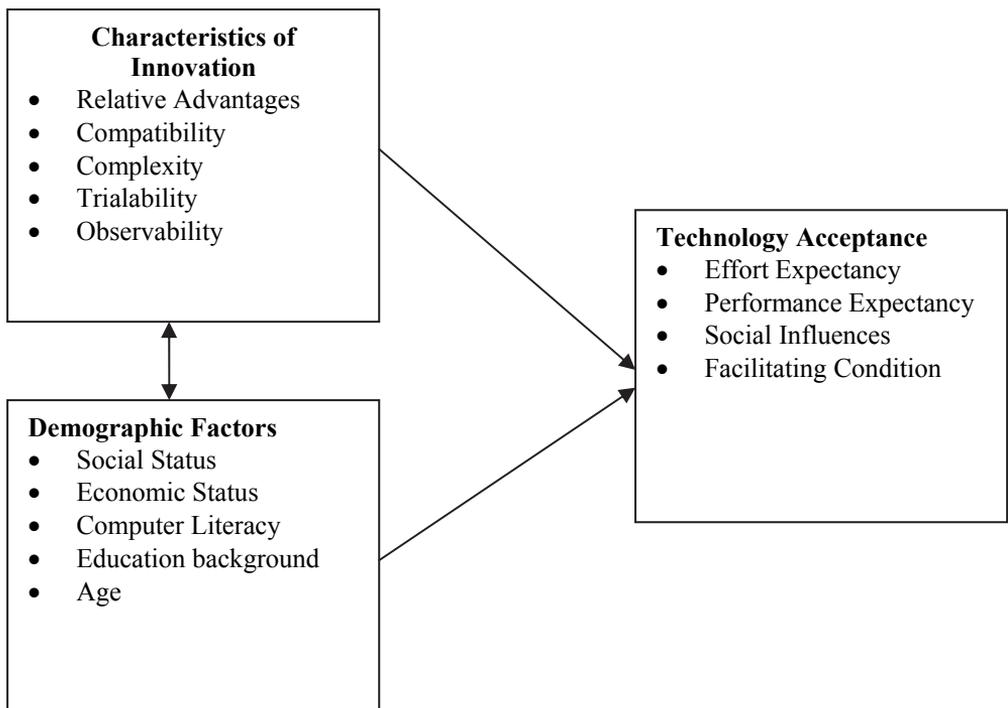


Figure 1: Research Framework

5.1 Hypothesis

Ha 1: There is a correlation between the characteristics of innovation and the technology adoption on the use of communications technology channel in paddy plantation.

Ha 1a: There is a correlation between the relative advantages and the facilitating condition in the use of communication technology channel in paddy plantation.

Ha 1b: There is a correlation between the relative advantages and social influences in the use of communication technology channel in paddy plantation.

Ha 1c: There is a correlation between the compatibility and social influences in the use of communication technology channel in paddy plantation.

Ha 1d: There is a correlation between the complexity and the performance expectancy in the use of communication technology channel in paddy plantation

Ha 1e: There was a correlation between trialibility and effort expectancy in the use of communications technology channel in paddy plantation.

Ha 1f: There is a correlation between observability and the effort expectancy in the use of communications technology channel in paddy plantation.

Ha 2: There is a correlation between demographic factors and the technology acceptance on the use of communication technology channel in paddy plantation.

Ha 2a: There is a distinction between high social status and low social status on the use of communications technology channels in paddy plantation.

Ha2b: There is a distinction between the old farmers and young farmers on the use of communications technology channels in paddy plantation.

Ha2c: There is a distinction between low-educated farmers and educated farmers on the use of communications technology channels in paddy plantation.

Ha2d: There is a distinction between the high economic status farmers high and low economic status farmers on the use of communications technology channels in paddy plantation

Ha2e: There is a distinction computer literate farmers and computer illiterate computer literacy on the use of communications technology channels in paddy plantation.

Ha 3: There is a link between innovation characteristic factors and technology acceptance in the use of communication technology channel in paddy plantation.

Ha 3a: There is a link between relative advantages, compatibility, complexity, trialibility and observability in the use of communication technology channel in paddy plantation.

Ha 3b: There is a link between the effort expectancy, performance expectancy, social influence and facilitating condition on the use of communication technology channel in plantation.

6.0 METHODOLOGY

This study employed quantitative and qualitative approaches. The method of quantitative approach, a questionnaire was designed based on the adaptation of the suitable instruments that appropriate for this research to find the relevance of the variables such as the relative advantages, the trialibility, the compatibility, the complexity, the observability, the performance expectancy, the effort expectancy, social influences and facilitating condition for the use of communication technology channel to obtain information for paddy plantation by the farmers. In addition, demographic background such as the social status, the economic status, the age, the education background and the computer literacy are also considered as the factors that contribute to the use of the communication technology channel. A total of 400 respondents which consist of MADA farmers will participate in this study based on a stratified random sampling method. Statistical tests such as correlation, regression and t-test will be conducted on the data collected through questionnaires. For qualitative methods, a total of 10 respondents among MADA farmers will also be selected to participate in the Focus Group Discussions (FCP). Qualitative data will be used to support the quantitative findings. Quantitative data will be analysed using SPSS 21 software and qualitative data will be analysed using Envivo software.

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