LEARNING BEHAVIOUR OF IT USAGE AMONG AGRICULTURAL EXTENSION AND DEVELOPMENT OFFICIALS

Ponsaran Saranrom
School of Agriculture and Cooperatives,
Sukhothai Thammathirat Open University, Nonthaburi, Thailand
oh1981@gmail.com, ponsaran.sar@stou.ac.th

ABSTRACT

The objectives of this study are to study: (i) the general status and characteristics of the Agriculture Extension and Development officials, (ii) their learning behaviour and the Information Technology usage, (iii) their patterns of information and news exchanges, (iv) impact on their learning, and (v) the problems and obstacles in accessing information technology. A total of 79 students were selected using the purposive random sampling technique. Data were collected by interviewing the sample group. Statistical software was used to analyse the data. The findings from this study showed that: (i) the officials mostly relied on their colleagues, supervisor, and themselves for acquiring knowledge as well as relying on training courses; (ii) they mostly receive information to develop their potentials at work from electronic media. The recognition of the benefits of Information Technology in learning shows higher ratings for the dimensions related to work, innovation, and technology. The pattern of news and information exchanges showed that the officials often acquire information from personal media, followed by electronic media. Electronic media was ranked 1st in the five stages of adoption: awareness, interest, evaluation, trial, and adoption. The impact of the use of information technology towards learning has high ratings on earlier achievement. The impacts that were rated high include learning support and lessening of their working costs. The officials faced problems and obstacles in understanding information technology. Information Technology usage among the officials showed that they can effectively facilitate agricultural extension work.

Keywords: Learning Behaviour, Information Technology Usage, Exchange Patterns, Agricultural Extension and Development Officials

INTRODUCTION

Information technology (IT) has a huge role in communication today. It has resulted in changing the daily lives of people in society. The introduction of IT played a vital role in supporting the activities of people in society whether in education, business, or work. The work of extension and development officials is another area where IT could be applied to carry out the work more effectively. This is in line with the Digital Master Plan designed by the Ministry of Information and Communication Technology to move towards Smart Thailand 2020 Digital Society which includes a focus area in Agriculture with the aim to reduce poverty and to increase the quality of life of farmers (Information and Communication Technology Centre, 2013). The agricultural extension and development officials who have enrolled in distance education programme at the Sukhothai Thammathirat Open University (STOU) have the opportunity to increase their knowledge via such technology. Pattern of

information technology usage in the form of electronic media for education, specifically in the distance learning education programmes involving studies of subjects in agricultural extension via e-learning systems, as well as exchange of knowledge among peers via social networks such as LINE, Facebook, and others may prove to be beneficial.

Nevertheless, the use of effective IT must be appropriate for the targeted person and their learning behaviour. Therefore the learning behaviour of the officials who are responsible for agricultural extension and development must be studied in order to find out how they gain knowledge from working, find additional knowledge about the work performance, including the access to knowledge for their self-development, and conditions of learning in terms of how IT is appropriate for the knowledge. The news and the various sources should be studied along with how the officials use media to receive information and news. The exchange of information and news in terms of which media form was used and the stage of communication of innovation that was exchanged is equally important. In addition, a study on the application of IT for learning should be performed by determining the problems and obstacles in accessing and understanding information technology. The research findings shall serve as a guideline to develop IT pedagogical framework which suits the learning behaviour and the use of information technology of the extension and development officials.

LITERATURE REVIEW

This study is motivated by the plan to develop Agriculture in Thailand via IT usage that is described in Digital Master Plan by the Ministry of Information and Communication Technology (B.E. 2557–2561). One of the key objectives of the plan for the agriculture sector is to connect farmers and to establish the Agriculture Intelligence Centre. In order to achieve this target, the officials in the field of agricultural extension and development must have the ability to use IT in order to work effectively (Information and Communication Technology Centre, 2013). This research is based on the conceptual framework shown in Figure 1.

The exchange of information and news by the officials is analysed based on the following five stages of adoption process that was proposed by Rogers and Showmaker (1978).

Stage 1: Awareness

Stage 2: Interest

Stage 3: Evaluation
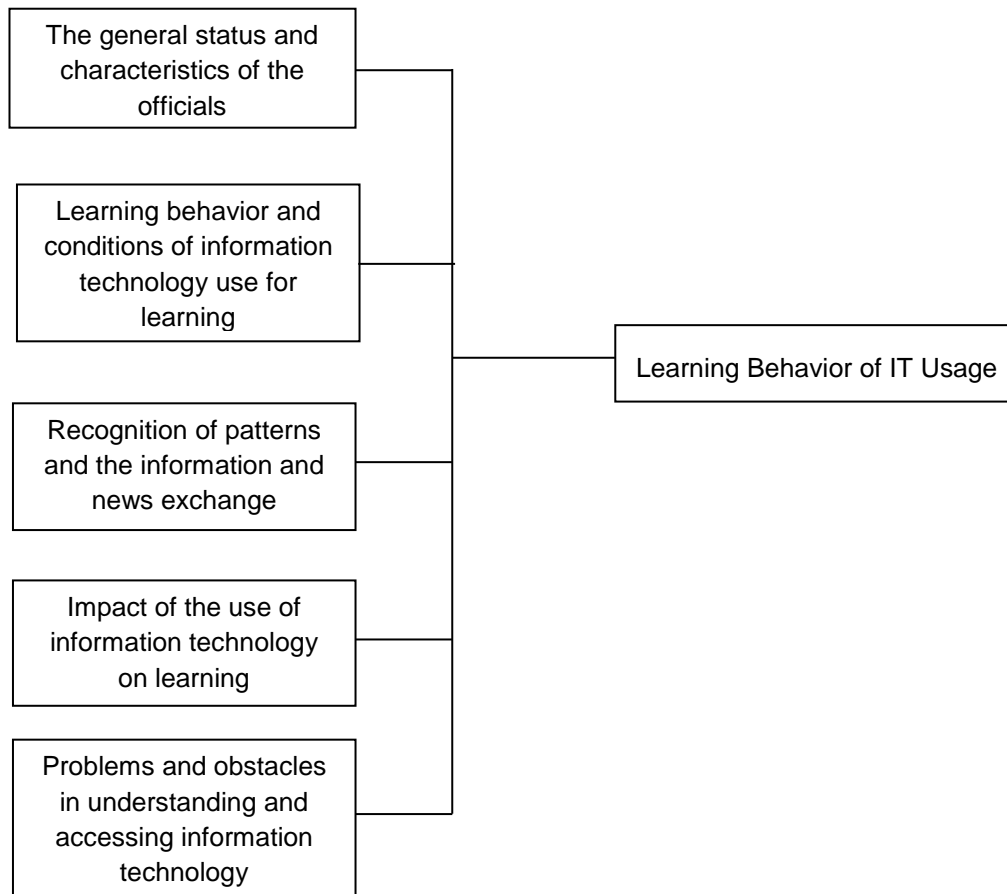
Stage 4: Trial

Stage 5: Adoption

```
┌─────────────────────┐
│ The general status  │
│  and characteristics│
│    of the officials │
└─────────────────────┘

┌─────────────────────┐
│ Learning behavior   │
│ and conditions of   │
│ information         │                    ┌──────────────────────────┐
│ technology use for  │                    │ Learning Behavior of IT  │
│ learning            │                    │ Usage                    │
└─────────────────────┘                    └──────────────────────────┘

┌─────────────────────┐
│ Recognition of      │
│ patterns and the    │
│ information and     │
│ news exchange       │
└─────────────────────┘

┌─────────────────────┐
│ Impact of the use of│
│ information         │
│ technology on       │
│ learning            │
└─────────────────────┘

┌─────────────────────┐
│ Problems and        │
│ obstacles in        │
│ understanding and   │
│ accessing           │
│ information         │
│ technology          │
└─────────────────────┘
```

Figure 1: Conceptual framework

The research objectives of this research are to study:
(1)   the general status and characteristics of the officials;
(2)   the learning behaviour and the use of information technology for learning;
(3)   the pattern of information and news exchange among the officials;
(4)   the impact of using information technology on learning; and
(5)   the problems and obstacles faced by the officials in understanding and accessing information technology.

RESEARCH METHOD

The population in this study comprises 99 students who took responsibility for agricultural extension and development and who were master's degree students under the Master of Agriculture degree programme, Agricultural Extension and Development at STOU. The sample studied was selected by purposive random sampling conducted by selecting only the officials who took responsibility for agricultural extension and development. A sample size of 79 students was used in this study.

The research tools used in this study include a structured interview and a questionnaire. The interview questions were checked and reviewed by assessing reliability through the alpha coefficient test. The interview examined the perceived advantages of information technology, the suitability of the information technology, the level of the benefits for self-learning in using information technology, the level of the use of self-learning in using information technology, the level of skills and competencies in self-learning using information technology, the level of readiness in learning using information technology, the frequency of the news recognition,

the level of effects of the use of information technology on learning, and the level of ideas regarding problems and obstacles in understanding and accessing information technology for learning. In these cases, the alpha coefficients were 0.876, 0.909, 0.870, 0.804, 0.877, 0.867, 0.876, 0.912, and 0.812, respectively.

The data collection was performed by using a questionnaire with the sample group in July 2015. While the data analysis was carried out using descriptive statistics to analyse the frequency, percentage, average, standard deviation, and rating.

RESEARCH FINDINGS

General Status and Characteristics of Officials

The officials were mostly female with an average age of 33 years and working experience of about 4 years. Most of the officials were working under the government service as agricultural extension and development officers. They were enrolled into the programme based on their bachelor's degree. The findings showed that in 2015, the expenses of the officials related to information technology consist of an average monthly instalment fee for services of 556.18 baht per month.

Officials' Learning Behaviour and Conditions of Information Technology Use for Learning

The learning behaviour of the officials indicated that the existing knowledge to perform work to extend agriculture mostly came from their colleagues or supervisors (88.6%), self-learning (84.8%) and training (81.0%). The method used by the officials to find additional knowledge to extend agriculture was mostly through self-learning (92.4%). In terms self-development, most knowledge was received through electronic media (internet, mobile phone, video, CD, video, and such) but only at 25.6%.

The learning conditions discovered indicate the recognition of the benefits of information technology at $\overline{X}$ = 4.54. This was the highest rating given. Appropriateness in the user dimension was rated highest with the ability to gain access easily and quickly at $\overline{X}$ = 4.24. This was followed by the ability to learn through self-practice at $\overline{X}$ = 4.06, and the ability to use information and categorize conveniently and search easily (as the data were arranged in order with a short period of data loading) at $\overline{X}$ = 3.85. Appropriateness of the dimension of features of innovation that was rated high include characteristics such as working easily, quickly, and conveniently at $\overline{X}$ = 4.24. The officials had the ability to make the decision, to choose information technology by themselves ($\overline{X}$ = 4.19). This was also in line with the rating at $\overline{X}$ = 4.05 for the nature of the work without any complications or complexity, and easy to understand with clear results at $\overline{X}$ = 3.92. Appropriateness of the technology dimension was rated high level as well. The presentation on information that benefits the additional learning for work rated at $\overline{X}$ = 4.24, while reliable information was rated at $\overline{X}$ = 3.66.

Patterns of Information and News Exchanges among the Officials

Patterns of news exchanges shows that the highest response level for using tools to receive and search for news was at the office (89.9%). This was followed by personal residence (84.8%). It was found that under the choice of media to receive news (media pattern), the use of electronic media was rated highest at $\overline{X}$ = 4.65. This includes electronic media such as computers and the internet as well as smart phones and the internet. Under the personal media, information was received mostly through colleagues with highest rating at $\overline{X}$ = 3.77, and secondly through supervisors with $\overline{X}$ = 3.56. For the recognition of news (program type),

the pattern used follows the trend in the following descending order: websites ($\overline{X}$ = 4.53), LINE ($\overline{X}$ = 4.34), Facebook ($\overline{X}$ = 4.00), e-mail ($\overline{X}$ = 3.97), and e-learning ($\overline{X}$ = 3.52).

Exchange of learning related to work performance indicates that there was an exchange from electronic media at the 1st rank for all five stages based on the five stages of adoption of innovation theory of Rogers and Shoemaker.

Impact of the Use of Information Technology on Learning

This study recognised the impact on receiving news at a high level, with information technology providing a quick way to receive news ($\overline{X}$ = 4.33). This was followed by convenience of receiving news and the time consumed in receiving news with ratings at $\overline{X}$ = 4.27 and $\overline{X}$ = 4.13, respectively.

The impact of IT on learning was evident as it enabled the learning of extension work with a rating of $\overline{X}$ = 4.18. It also helped to reduce the cost of study. This item was rated at $\overline{X}$ = 3.90.

IT had an impact upon daily life as the respondents agreed that information technology played an important role in their daily life with $\overline{X}$ = 4.06. They also agreed that IT helped to reduce the cost of work with $\overline{X}$ = 3.85.

Problems and Obstacles of the Officials in Understanding and Accessing Information Technology

Problems in understanding information technology exist at a moderate level. One of the problems faced includes the lack agencies to conduct training related to the use of information technology which was rated at $\overline{X}$ = 2.67.

There were also problems in understanding information technology at a low level. A few reasons were identified. The reasons include the lack of knowledge about how information technology can be used for learning ($\overline{X}$ = 2.38), the lack of support structure to help learners to use information technology for studying ($\overline{X}$ = 2.32), and the lack of tools for using information technology for leaning ($\overline{X}$ = 2.22).

DISCUSSION

The learning behaviour of IT usage among the extension and development officials that was discovered in this study is depicted in Figure 2.
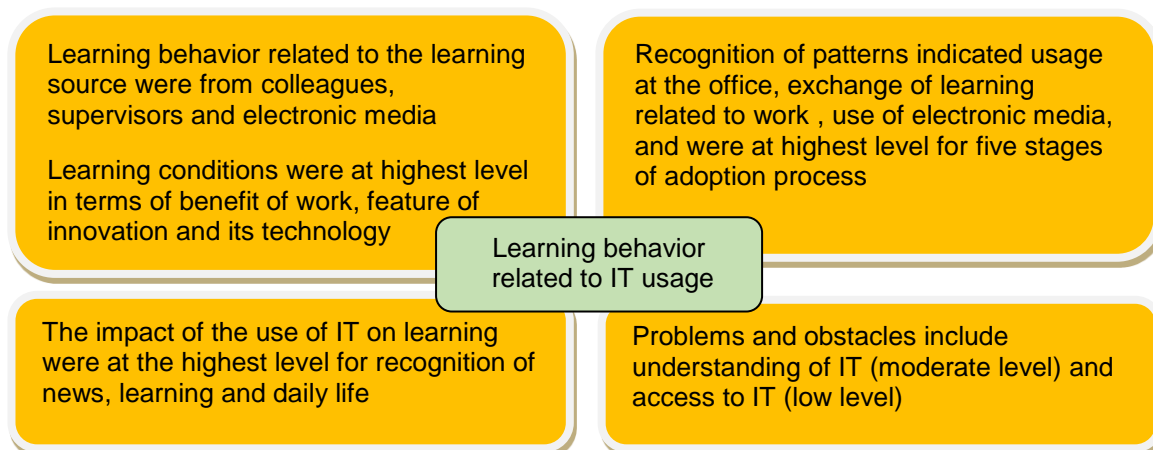
Learning behavior related to the learning source were from colleagues, supervisors and electronic media

Learning conditions were at highest level in terms of benefit of work, feature of innovation and its technology

Recognition of patterns indicated usage at the office, exchange of learning related to work , use of electronic media, and were at highest level for five stages of adoption process

Learning behavior related to IT usage

The impact of the use of IT on learning were at the highest level for recognition of news, learning and daily life

Problems and obstacles include understanding of IT (moderate level) and access to IT (low level)

Figure 2: Learning behaviour related to IT usage

Learning Behaviour

Officials acknowledged the fact that they gain most of their knowledge from self-learning. It was found electronic media was recognised as the most widely used media type. This is in agreement with the findings by Katchamroon (2009) who also found that most of the students had individual learning styles for learning through e-learning. The tendency of the officials to look for knowledge through electronic media more than other media may arise from the habit of conducting quick search for knowledge reading in web boards, or from e-learning resources from the institution that provide distance learning options. Distance education related agencies should develop learning formats that are appropriate for the learning behaviour of the officials who liked self-learning, especially in the form of highest rated usage format which was the electronic media.

Conditions of Learning

Officials had identified appropriate learning conditions such as the ability to easily and quickly access learning that is convenient for working adults. Information benefited the additional learning while additional information benefited work performance and was found to be highly reliable. This finding is in line with the research findings by Srisap (2011) who found that 48.0 percent of students had the opinion that good learning through information technology meet their needs, and 55.5 percent thought that data presentation through information technology is a new knowledge. The development of distance education especially in the area of agricultural extension should take into account efforts to ensure easy access to the available digital resources. It is important that the officials have access to internet and smart phone services by ensuring availability of telecommunication services in all areas. In addition, contents which were presented through distance media must be interesting and up-to-date. This is supported by the research findings whereby the two most important factors supporting the learning of the officials are accessibility and effectiveness.

Recognition of Patterns and Acknowledgment and Exchanges of Learning

The research results found that the exchanges were from electronic media at 1st rank for all five stages of the adoption process (see Figure 3) can be compared with the adoption of innovation process theory of Rogers and Shoemaker (1978). It can be argued that electronic media plays a vital role in distance learning to obtain recognition, exchange of learning, and the communication of innovation rather than personal contact which was the previous pattern of recognition in the agricultural extension work.
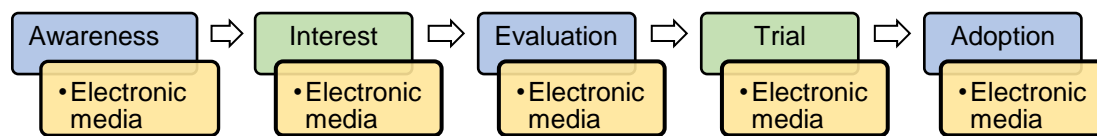
Figure 3: Sources to exchange information and news in five stages

Effects of the Use of Information Technology upon Learning

Officials gave positive feedback towards the use of information technology for learning in almost all areas such as obtaining news quickly, extending knowledge, and reducing the cost of learning. Information Technology was necessary for daily life and it helps to reduce the cost of work. This brings about a positive result for the overall agricultural development for both the officials and the farmers. These efforts can have a positive influence on the implementation of the Information and Communication Technology master plan of the Ministry of Agriculture and Cooperatives No. 3 (B.E. 2557–2561) which was to be more effective as per the vision to make Thai agriculture achieve information society status by providing excellent government service to increase the quality of life of farmers (Information and Communication Technology Centre, 2013).

Problems and Obstacles in Understanding and Accessing Information Technology

It was found that most of the officials had moderate to low levels of problems covering a number of issues. One issue is the lack of agencies conducting training about the use of information technology. The use of information technology can be quite complex, and the officials may lack the knowledge on how IT can be used for learning. The general status and characteristics of officials indicate that the average age of the officials was 33 years old. They are a part of Generation Y who are familiar with the rapid growth of the technology and the internet. People in this generation like to work with information technology (Main, 2013). Therefore, it can be concluded that the use of distance learning and the use of information technology would be perceived in a positive light.

CONCLUSION

This study identifies the type of media used by the agricultural extension and development officials studying at STOU which are mostly based on electronic media. Learning conditions bring about benefits to work, features of innovation and technologies. Recognised IT usage pattern highlights the use at the office. Exchanges of information facilitating learning related to work via electronic media which were rated at the highest level for the proposed five stages of adoption process (Rogers & Shoemaker, 1978). The impact of IT usage on learning that was given highest rating were in the form of news exchanges, learning and daily life activities. There were problems and obstacles at both moderate level and low level. IT usage of the officials was found to be at an appropriate level and has the capacity to effectively facilitate agricultural extension work.

ACKNOWLEDGMENT

REFERENCES

Information and Communication Technology Centre. (2013). *Master plan of information and communication technology of Ministry of Agriculture and cooperatives* (No. 3 B.E. 2557-2561*).* Bangkok: Information and Communication Technology Centre, Office of Permanent Secretary for Ministry of Agriculture and Cooperatives.

Katchamroon, S. (2009). *The need of using Information Technology for leaning, emphasizing on learner of bachelor's degrees student from Ramkhamhaeng University.* Ramkhamhaeng University.

Main, D. (2013). Generation Y definition. Retrieved on 8 December 2016 from http://www.livescience.com/38061-millennials-generation-y.html

Rogers, E., & Shoemaker, F. (1978). *Communication of innovations: A cross-cultural approach.* New York: Free Press

Srisap, S. (2011). *The application of Information Technology on learning through the principle of sufficiency economy of Ramkhamhaeng University Students.* Ramkhamhaeng University, Office of Educational Technology.