

Factors affecting for the usage of mobile applications among farmers in Bulathsinhala area in Sri Lanka

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Abstract - Farmers invest much money for their cultivations but they failed recover their cost due to not having latest agricultural information. Mobile applications are maintained by local agencies to enhance information richness of farmers. However, the farmers do not use those applications. Therefore, the objective of this study was to investigate the factors affecting for the usage of mobile applications among farmers in agriculture in Bulathsinhala area. The administrative questionnaire was developed getting help from previous studies and data were collected from 100 respondents who had smart phones using purposive sampling technique. The respondents were farmers who engaged with Land, Mud and Animal farming. The results revealed that Education and Knowledge, Social & Family Factors and Economic Condition had a significance relationship with usage of mobile application. According to Pearson correlation, Facilitating Conditions is also statistically significant to use mobile application by farmers but using regression rejects it. Famers must be educated to use agricultural applications, as well as agricultural societies must share the cost of those applications.

Keywords - Agriculture, Economic Condition, Education and Knowledge, Farmer, Mobile Application

I. BACKGROUND

E-Agriculture or Information and Communication Technology (ICT) in agriculture defined as the empowerment process of agriculture by using information and communication processes. E- Agriculture associate with the conceptualization, design, development, evaluation and application of innovative methods to use ICT in the agricultural areas. It helps to increase the productivity, income, reduce risk and reduce cost of agricultural sector. The role of e-agriculture can divide as Food and safety, Financial and risk management, Disaster Management etc. [2].

According to Jayathilake, Jayaweera, & Waidyasekera [5] Sri Lanka is a developing Agricultural country. Therefore, Agriculture contributes to more capacity of Gross National Production in Sri Lanka. The demand for agricultural productions is increasing day by day. Not only Sri Lanka but also other developing countries, which are doing Agriculture, as their major path of income must be, empower their framers' living style for pass the point of developing country label. Farmers do not want to change their position to match with modern facilities. The major challenge is the lack of information. They only depend on common communication methods like Books, Newspapers, Radios, Television, Posters,

Word of mouth communication, etc. The study of Anjum [1] highlighted that Mobile phones are the vital role of society now a day. In rural areas, farmers used their mobile phones only for calling facilities.

II. LITERATURE REVIEW

According to Islam and Ake [4] availability of facilitating conditions is a governance factor for the soft connective between the connection provider and the recipient. The facilitating conditions defined as “the degree to which an individual believes that an organizational and technical infrastructure exist to support the use of a system” [3].

The study of Sheikh Mohammed et al. [8] has identified that, the knowledge empowerment factor was positively significant to empower the farmers in usage of mobile applications. The study of Osadebmwen [6] education status of the farmers was instrumental to the adoption and use of mobile phone. The secondary educated farmers had more probability to use mobile applications than low levels. According to Sirajul, M. Islam; Ake, Gronlund [7] the facilitating conditions were positively impact on the usage of mobile applications.

According to Sheikh Mohammed et al, [8] has identified that, the family and social empowerment factor was positively significant to empower the farmers in usage of mobile applications. Further the study mentioned that the economic empowerment factors studied based on the variables like income, saving habits, investments, financial management skills, extend of depending on moneylenders, purchasing of inputs of farming.

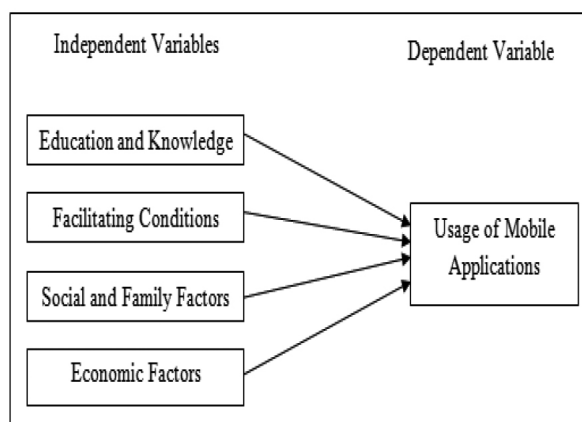


Fig 1: Research Model

Based on the above literature review following research model was developed using Education and Knowledge

factors, Facilitating Conditions, Social and Family factors, Economic Facilities as independent variables and Usage of Mobile Applications as dependent variable.

III. METHODOLOGY

Lack of updated information relevant to agriculture mainly affected the income of farmers. The researcher first read the relevant literature regarding mobile application usage in agriculture sector and found that many applications available but farmers in Sri Lanka were not using them at a satisfactory level. A comprehensive questionnaire, which includes factors affecting to use of mobile applications relevant to agriculture were developed. Primary data were collected using purposive sampling technique from 100 farmers in Bulathsinhala Area. Pearson correlation analysis and regression analysis were used to identify relationship among research variables. Demographic factors were analyzed using descriptive statistics. A statistical tool such as reliability test (Cronbach’s Alpha value) was used to measure the reliability.

IV. RESULTS AND DISCUSSION

1. Reliability Analysis

According to Table 1, all alpha values are above seven (07) and ranging from 0.791 to 0.830. It indicates the results of interpretations of the research variables are reliable.

Table 1
Reliability analysis

Variable	No. of Items	Cronbach’s Alpha
Education and knowledge factors	5	0.826
Facilitating conditions	4	0.812
Social and Family factors	7	0.791
Economic Facilities	5	0.825
Usage of Mobile Applications	7	0.830

2. Descriptive Analysis of research variables

According to table 2, all the mean values of the research variables are relatively high and above three. The mean values of the variables are ranging from 3.6225 to 4.0814; the standard deviation values are ranging from 0.231 to 0.483.

Table 2
Descriptive statistics

Variable	Mean	Std. Deviation
Education Knowledge	3.8180	0.58333
Facilitating Conditions	3.6225	0.69494
Social and Family Factors	3.8129	0.48037
Economic Factors	3.6260	0.69204
Usage Mobile Application	4.0814	0.55542

3. Correlation and Regression Analysis of the Research Variables

According to Table 3, all of the correlation values are more than 0.3 and significant values are less than 0.01. Therefore, there are positive associations between the dependent variable and the independent variables.

Table 3
Pearson correlation and significance values

Variable	EK	FC	SFF	EF	UMA
Education Knowledge (EK)	1	0.368** (0.000)	0.340** (0.001)	0.325** (0.001)	0.394** (0.000)
Facilitating Conditions (FC)		1	0.363** (0.000)	0.441** (0.000)	0.368** (0.000)
Social and Family Factors(SFF)			1	0.538** (0.000)	0.507** (0.000)
Economic Factors (EF)				1	0.606** (0.000)
Usage Mobile Application (UMA)					1

**** Correlation is significant at the 0.01 level**

Table 4 display the output of regression analysis. Hence, R-Square value is 0.437, which means 43.7% of the variation in use of Mobile Applications by farmers could be explained by the constructs Education Knowledge, Facilitating Conditions, Social and Family Factors, Economic Factors. The p-value from the ANOVA table is 0.000, which less than 0.001, which means that at least one of the four variables can be used to model use of mobile applications by farmers.

Table 4
Regression analysis

.Variable	B	sig
(Constant)	1.233	0.002
Education Knowledge (EK)	0.150	0.048
Facilitating Conditions (FC)	0.037	0.608
Social and Family Factors (SFF)	0.239	0.030
Economic Factors (EF)	0.336	0.000
R Square =0.437, ANOVA Sig. = 0.000, F value=18.850		
Predictors: EK, FC, SFF, EF Dependent Variable = use of Mobile App by farmers		

V. CONCLUSION AND RECOMMENDATION

Agriculture is important to economy of any country. Farmers do not get maximum benefits of their cultivation due lack of updated information. Today, mobile applications are easiest method to access information of any industry. However, there are many mobile agricultural applications available but farmers do use them due to various reasons. Therefore, the objectives of this study were to find out the factors behind not using mobile agricultural applications in Bulathsinhala area.

Based on the previous studies four factors identified that farmers do not using mobile agricultural applications. Among the factors Education Knowledge, Social and Family Factors, Economic Factors were statistically significant to use of mobile application by farmers and Facilitating Conditions was not. Farmers have to be educated to use agricultural mobile applications and government has to encourage the agricultural societies to share the cost of use of agricultural mobile applications.

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