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Socio-Personal Determinants of Farmers' Attitude towards Information and Communication Technology (ICT)

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Abstract

The economy of the developing country like India predominantly depends on agriculture and development of it emphasizes on the need of related information to be transferred to the farmers. Now-a-days Information and Communication Technology (ICT) plays a vital role in every sector of development. The country like India is increasingly integrating ICT into its national development plan and adopting strategies for its wide spread promotion for transforming the nation into a knowledge vibrant e-learning society. The farmers are also showing interest towards ICT. A positive attitude towards ICT will surely enhance this interest towards harnessing benefits out of it on a sustained basis. As attitude depends upon the socio-personal disposition of an individual, the present study tried to tress out those factors in relation to use of ICT. The study was conducted in Cooch Behar district of West Bengal. An attitude scale was used to generate data. From the study, it has been found that family education, asset possession, management orientation and communication behaviour are significantly associated with the development of favourable attitude towards use of ICT tools.

Key words: Attitude of farmers, Information Communication Technology, Socio-personal factors.

Introduction

In present context of new emerging challenges of climate change, declining productivity or low-price realisation by the producers towards effective and profitable farming, the transfer of appropriate information in right and real time can play vital role. In this context, the information communication technology (ICT) is the key enabler and vital component of new knowledge-based economy and information revolution (Dhaka and Chayal, 2010; Barh and Balakrishnan, 2018). ICT is playing a great role in the development of agriculture by providing fast, reliable and accurate information and means to the farmers in a user-friendly manner (USAID, 2010; Shalendra and Sharma, 2011, Poornima and Ayyanagowadar, 2018) and also providing decision support by ICT based Agricultural Intelligence systems (Singh and Gupta, 2016). However, low accessibility and usage of ICT tools are major challenges in rural India due to economic condition of the farmers, low infrastructural facilities to support ICT applications, low confidence to handle ICT tools (Albert, 2014; Jayanti and Ashokan, 2016; Movethan *et al*., 2015; Syiem and Raj, 2015). Unfavourable attitude towards ICT also plays as a hindrance towards widespread use of ICT in farming. However, attitudes of the farmers towards accepting ICT-enabled tools are also changing (Verma *et al*., 2012; Kabir, 2015). Attitude being a component of behaviour depends upon the personal and socio-economic characteristics of individuals (Manstead, 2018) and so, the present study tried to tress out the socio-personal factors which influence shaping of attitude towards ICT.

Materials and Methods

The study was conducted in Cooch Behar district of West Bengal. Considering more or less uniform demographic characteristics of the villages of Cooch Behar district in relation to the present context of development in the sphere of Information and Communication Technology and its' access, five villages were purposively selected from the district. Hundred (100) farmers [20 from each village] were randomly selected as respondents for the study.

Attitude was operationalized as the degree of positive and negative feeling associated with some psychological object in the line of concept propounded by Thurstone (1931) and it was measured in respect of ICT in this study using the modified attitude scale developed by Kumar and Ratnakar (2011). The scale consists of 21 statements of which 16 statements were positive and 5 statements are negative. The responses were taken with the help of five-point continuum scale expressed as strongly agree, agree, undecided, disagree, strongly disagree with the assigned scores of 5, 4, 3, 2 and 1 respectively (reverse scoring is followed in case of negative sentence) to represent the degrees of agreement towards the attitude point (expressed as attitude statement). The score for each individual was obtained by summing up the score from each statement.

The socio-economic and personal characteristics were taken as the determinants which influence the attitude of individuals. Among all these, age, farming experience, family education status, annual family income, land holding, possession of assets (a combine score of possession of

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Table 1: Socio-personal characteristics of the respondents.

Socio-personal characters	Unit of measurement	Mean	Min.	Max.	Coefficient of Variation (CV %)
Age	Year	32.44	17.00	55.00	29.62
Family education status	Score	4.98	2.00	30.00	53.21
Farming experience	Year	10.94	1.00	17.00	68.28
Annual Family income	Rs. in Lakh	1.20	0.60	3.00	40.00
Land holding	Acre	2.81	0.33	9.90	68.33
Possession of assets	Score	38.24	14.00	74.00	30.15
Social participation	Score	1.15	0.00	2.00	35.65
Management orientation	Score	47.79	32.00	64.00	8.66
Communication behaviour	Score	20.58	10.00	34.00	20.60

Table 2: Distribution of respondents according to attitude towards ICT.

Attitude group	Frequency of farmers	Statistical implication
Strongly unfavourable (<38)	0 (0.00)	Mean=69.02
Unfavourable (38 to 55)	4 (4.00)	Min.=55
Neutral (56 to 71)	53 (53.00)	Max.=84
Favourable (72 to 88)	43 (43.00)	CV=11.07
Strongly favourable (>88)	0 (0.00)	%

NB: Figures in the parenthesis indicate percentage.

house and physical assets), social participation (membership of social organisation like Self Help Groups, Farmers' Club, Panchayat, Youth Club etc.), management orientation (aggregate capability on different managerial abilities in respect to farming) and communication behaviour (utilisation of communication sources) were taken for assessing their influence on attitude considering results from previous studies (Kharmudai *et al.*, 2018; Rajoria *et al.*, 2018; Devaraja, 2010).

Results and Discussion

Socio-personal characteristics of the respondent farmers

The study tried to trace out the influence of socio-personal characteristics of the farmers on their attitude towards information and communication technology. Table 1 shows the socio-personal characteristics of the farmer respondents of the study area. It was seen that the researchers considered a population which was diversified in respect of socio-personal characteristics. The age of the population varies from 17 yrs to 55 yrs and accordingly farming experience also varies from only 1 yr to 17 yrs as expected from age variation. In case of other characters like family education status, annual family income, land holding of the family, asset possession and social participation, the population is moderate to highly diverse which is depicted from the minimum and maximum range and the coefficient of variation value (in all cases CV% is more than 30%). Only in case of managerial and communication behaviour the population was showing moderate to low diversity (CV less than 20%).

The distribution of respondents (Table 2) according to their attitude towards ICT depicted that majority of the farmers (53%) were having a neutral attitude *viz*. having a mental state of no favouritism or no unfavouratism. Although 43% of them showed favourable attitude, yet only 4% of them also had unfavourable attitude. However, the coefficient of variation (CV %) value suggests that though the population is diversely distributed in respect of most of the socio-personal characters, but they are very much consistent in respect of their attitude towards ICT (CV is only 11.07%). This finding preliminary suggests that the socio-personal characters may have less influence on attitude of farmers towards ICT.

Socio-personal determinants of farmers' attitude towards ICT

This section depicts the socio-economic determinants of farmers' attitude on ICT *viz*. influence of these variables on attitude were assessed. Table-3 presents coefficient of correlation (r) values between socio-personal variables and farmers' attitude towards ICT.

The result shows that the variables family education status, possession of assets, management behaviour and communication behaviour are positively and significantly associated with the attitude towards ICT tools. It means that a change in these variables will change the attitude level in

Table 3: Correlation Coefficient between socio-personal variables and farmers' attitude towards ICT.

Variables	Coefficient of correlation (r)
Age	-0.111
Family education status	0.221*
Farming experience	-0.18
Annual Family	0.058
Land holding	-0.099
Possession of assets	0.207*
Social participation	0.166
Management orientation	0.210*
Communication behaviour	0.253*

*Significant at 5% level.

Table 4: Results of Multiple Regression between socio-personal variables and farmers' attitude towards ICT.

Socio-personal characters	Unstandardized Coefficients	Standardized Coefficients	t-value
Age	0.068	0.085	0.469
Family education status	0.601	0.209	2.172**
Farming experience	-0.148	-0.145	-0.781
Annual Family	0.059	0.004	0.030
Land holding	-0.401	-0.101	-0.770
Possession of assets	0.084	0.127	1.140
Social participation	2.062	0.111	1.126
Management orientation	0.255	0.138	1.397
Communication behaviour	0.372	0.206	2.042**

R^2=19.9%

the same direction. Other variables having no significant influence on attitude towards ICT. Family education status is the back bone of cognitive enlargement. Persons acquire their knowledge from the formal education system and that makes an individual more receptive towards knowledge-providing agents like ICT. Asset possession is directly related to the economic condition of the family which in turn makes the family more capable to access ICT tools and it creates a positive attitude towards ICT. Management orientation may be treated as one of the psychological variables which develops a motive within the psyche to stimulate the positive thinking on a particular issue. Present day farmers are eager to obtain market information timely and get suitable price for their product and ICT plays significant role towards this. It may be the cause that management orientation is significantly and positively correlated with attitude towards ICT.

A multiple regression analysis (Table 4) is also incorporated to fine-tune the results in Table 3 and identify the significant socio-personal predictors for attitude towards ICT. It is observed that family education status and communication behaviour are positively and significantly contributing in shaping farmers' attitude towards ICT tools. Result shows that one-unit change of the variable family education status and communication behaviour delineating to 0.601-unit and 0.372-unit change in the predicted variable (attitude on ICT) respectively.

However, the R^2-value (19.9) suggests that socio-personal characters of the farmers are not very significant determinants of the attitude of farmers towards ICT, because, they jointly can explain only 19.9% of total variability of attitude of farmers.

Conclusion

The predisposition of behaviour towards positive utilization of ICT tools can usher a new era of information depended technological intervention in agriculture. The present study reflected the attitude of farmers towards utilizing ICT tools and identified the influence of socio-personal attributes on attitude. The family education status and economic affluence of the family enhance the positive attitude of the farmer in case of utilising the ICT tools in a better way. The managerial efficacy and the appropriate use of communication sources are also two important indicators for developing positive attitude towards ICT tools use in an effective manner. So, it is to infer that for future policy implication related to development of positive attitude of farmers towards appropriate use of ICT tools should technically and critically consider the perspectives like higher economic status, high level of managerial efficacy, high level of education and high level of efficiency for appropriate utilization of information and communication technology sources.

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