



FACTORS INFLUENCING THE FARMER'S ATTITUDE TOWARDS ICT BASED EXTENSION SERVICES IN SELECTED DISTRICT OF UTTAR PRADESH

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ABSTRACT

Agriculture is the backbone of Indian economy which could be benefited by using ICTs. In this context, extensive use of modern information technologies need to be popularized at grass root level for the transfer of technologies and information as cost effective. The objective of this study was on the attitude of farmers towards ICTs based extension services delivery in two selected districts of Uttar Pradesh. The data was collected through personal interview technique with the help of interview schedule and appropriate statistical tools were used to analyse the collected data. Purposively and random sampling techniques were used in selection of sample in this study. 280 respondents were selected for this study. The results show that respondents were found to have had medium level socio-economic background. The overall level of attitude was also found in medium level. In addition age, education, caste, family size, monthly income, mass media exposure, land holding, economic motivation, scientific orientation, risk orientation were found to be potential factors of developing favourable attitude towards ICTs based extension services. Finally, while planning programme for the development of ICTs sector, policy makers should consider the potential factors which could help towards conversion of conventional extension services to ICTs based extension services and also for future development of India.

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INTRODUCTION

The use of ICTs based extension services particularly mobile phone application can accelerate agricultural development in general and behavioural changes in particular. It can provide useful and relevant information to solve problem of individual farmers and farming community by enabling individuals and households to learn and acquire new skills and technologies and also share innovations among peer groups. It will help to faster transfer of information and knowledge for sustainable and equitable agricultural development and help to bring about increased production in agricultural activities and improved livelihood of the farmers. ICTs based extension services provider build in the linkage through enhancing the exchange of information among researchers, farmers and agricultural extension system and make them function as one institution.

The success of the ICT based extension project is dependent on the attitude of the users. Attitude is seen as an evaluate disposition based upon cognitions, affective reactions, behavioural intension and past experiences and it provides the positive or negative response of someone's towards something.

The attitude in this study was operationalized as the degree of positive or negative feelings of farmers towards the information and Communication Technology (ICT) based extension services.

It is evidenced that positive attitude accelerate the decision making process for acceptance of ideas where as negative attitude reduces the uses. Keeping these facts in view an investigation was carried out to assess the level of attitude of farmers towards ICTs based extension service delivery and find out the factors influencing the level of attitude in U.P.

RESEARCH METHODOLOGY

Descriptive research design was used for this study. The study was conducted in the purposively selected two districts of Uttar Pradesh state i.e. Allahabad and Kanpur Dehat. These districts were reported to have more agriculture related activities by the Common Service Centres. Chaka block from Allahabad and Dilipnagar block from Kanpur Dehat district were selected purposively for the present study. Four Panchayats from each block were selected randomly. The sample size constituted 280 farmers from eight selected panchayats which were selected proportionately. In the selected district two ICT based extension services in the form of mobile phones in terms of IKSL from Allahabad and m-kissan from Kanpur Dehat where chosen based on easy accessibility of information to the users.

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For measuring the attitude of the respondents Likert scale was used. There were twenty two statements including both positive and negative against the 3 point scale to avoid the biasness of the respondents. The 3 point scales are agree, undecided and disagree with assigned score 3, 2 and 1 respectively.

RESULTS AND DISCUSSION

Socio-Economic Profile of the Respondents

Table 1 Socio-economic profile of the respondents

S.N.	Categories	IKSL Users (N=180)	'M'Kisan Users (N=100)	Total (N=280)
A AGE				
1.	Young (20- 35 years)	34 (18.88)	32 (32.00)	66 (23.57)
2.	Middle (36-50 years)	123 (68.34)	30 (30.00)	153 (54.64)
3.	Old (>50 years)	23 (12.78)	38 (38.00)	61 (21.78)
B CASTE				
1.	General	26 (14.44)	8 (8.00)	34 (12.14)
2.	OBC	93 (51.67)	52 (52.00)	145 (51.78)
3.	SC/ST	61 (33.89)	40 (40.00)	101 (36.07)
C Annual Income				
1.	Up to Rs. 50000	25 (13.89)	48 (48.00)	59 (21.07)
2.	50001 – 80000	91 (50.56)	34 (34.00)	125 (44.64)
3.	80001 – 110000	50 (27.78)	8 (8.00)	58 (20.71)
4.	110001 – 140000	14 (7.78)	10 (10.00)	24 (8.57)
D Family Size				
1.	Up to 5 member	54 (30.00)	21 (21.00)	75(26.78)
2.	6 – 10 member	114 (63.33)	72 (72.00)	186(66.42)
3.	Above 10 member	12 (6.66)	07 (7.00)	19(6.78)
E Education				
1.	Illiterate	56 (31.11)	27 (27.00)	83 (29.64)
2.	Primary School	46 (25.55)	22 (22.00)	68 (24.28)
3.	Junior High School	32 (17.77)	18 (18.00)	50 (17.85)
4.	High School	24 (13.33)	14 (14.00)	38 (13.57)
5.	Intermediate	12 (6.67)	11 (11.00)	23 (8.21)
6.	Graduate and above	10 (5.56)	08 (8.00)	18 (6.42)
F Occupation				
1.	Farming	134 (74.44)	83 (83.00)	217(77.5)
2.	Farming and Business	39 (21.67)	13 (13.00)	52(18.57)
3.	Farming and Service	07(3.88)	04(4.00)	11(3.92)
G Land Holding				
2.	Up to 1 (Marginal)	82(45.55)	50 (50.00)	132(47.14)
3.	1 – 2 (Small)	58(32.22)	38 (38.00)	96(34.28)
4.	Large	40 (22.22)	12 (12.00)	52(18.57)
H. Economic Motivation				
1.	Low (0-11)	35 (19.44)	26 (26.00)	61 (21.78)
2.	Medium (12-22)	97 (53.88)	53 (53.00)	150 (53.57)
3.	High (23-33)	48 (26.66)	21 (21.00)	69 (24.64)
I Scientific Oreintation				
1.	Low (0-18)	41 (22.77)	33 (33.00)	74 (26.42)
2.	Medium (19-36)	113 (62.77)	59 (59.00)	172 (61.42)
3.	High (37-54)	26 (14.44)	8 (8.00)	34 (12.14)
J Risk Preference Oreintation				
1.	Low (0-18)	42 (23.33)	37 (37.00)	79 (28.21)
2.	Medium (19-36)	116(64.44)	56 (56.00)	172 (61.42)
3.	High (37-54)	22 (12.22)	7 (7.00)	29 (10.35)

From the above table it is evident that 68.34 per cent IKSL users were in middle age group whereas 38 per cent of the m-Kisan users were in old age group. This shows that every type of age group is now using ICT services to get information of latest agricultural technology.50.56 per cent of the IKSL users were having annual income of Rs. 50001 to 80000.Where as 48 percent of the m-Kisan users were having annual income of Rs. 50000.63.33 percent of the IKSL users and 72 per cent of the m-Kisan users are having family size of 6 to 10 members.31.11 percent of the IKSL users and 27 percent of the m-kissan user are illiterate.74.44 per cent of the IKSL users and 83 per cent of the m-kissan users practice farming as their occupation.45.55 per cent of the IKSL users were marginal farmers and 50.00 per cent of the m-Kisan were also marginal

farmers.53,88 per cent of the IKSL users and 53 percent of the m-Kisan users were having medium level of economic motivation. 62.77 percent of the IKSL users and 59.00 per cent of the m-Kisan users were having medium level of scientific orientation. Both of the IKSL users and the m-Kisan users are having medium level of risk preference i.e. 66.44 per cent and 56.00 per cent respectively.

This findings is similar with the findings of Bhagat et.al (2004), Kaini (2004), Sunil Kumar (2004), Khokhar (2003), and Vanitha (2002)

Overall Socio-Economic Level of the Respondents

The overall socio-economic level of the respondents were drawn based on their characteristic is shown in table 2.

Table 2 Overall socio-economic level of the respondents

Sl.no	Socio-economic level	IKSL USERS(N=180)		M-KISAN(N=180)	
		F	P	F	P
1.	Low (11 to 18)	36	20.00	23	23.00
2.	Medium(19 to 25)	48	26.66	54	54.00
3.	High (26 and above)	96	53.34	23	23.00
Total		180(100.00)		100 (100.00)	

The table above shows that the overall socio-economic level of the respondents were of high level (53.34 %) in case of IKSL users and of medium level (54.00 %) in that of the M-Kisan users. This findings is similar with the findings of Arun Babu (2005) and Frempong *et al* (2006)

Attitude of Respondents towards Iksl and M-Kisan

From the table above it is shown that for IKSL users 37.23 per cent disagree that ICT provides possible solutions to the present agricultural situation and for mkisan 48.00 per cent disagree. 44.45 per cent IKSL users disagree that ICTs can't meet location specific needs of the farmers and 46.00 per cent mkisan users also disagree. 40.00 per cent mkisan users agree that ICTs are potential tools to reach the need of the farmers and 13.89 per cent IKSL users also agree to this statement. 68.34 per cent IKSL users disagree that farmer's feedback is very fast through ICTs than traditional method and 52.00 percent of the users of mkisan also disagree. 51.67 per cent of the IKSL users agree that Illiteracy will not deter farmers in availing ICTs services and 34.00 per cent of the mkisan users also agree. 44.45 per cent of the IKSL users agree that ICTs cannot deliver personalized information and 78.00 per cent of the mkisan users also agree. 51.67 per cent of the IKSL users agree where as 44.00 per cent of the mkisan users disagree that ICT based Extension services assist the farmers in planning and decision making aspects in Agriculture. 68.88 per cent of the IKSL users disagree and 68.00 users of mkisan also disagree that ICTs services are distant dream for resource poor farmers. 59.44 per cent of the users of IKSL disagree whereas 49.00 per cent of the mkisan users agree that Farmers can get remunerative price to their produce through ICT based market intelligence. 60.00 per cent of the IKSL users agree and 44.00 per cent of the mkisan users also agree that expert advice makes the farmers enterprises/activities productive are also agree. 68.88 per cent of the users of IKSL agree and 44.00 per cent of the mkisan users disagree that all kinds of information exchange possible only through ICTs. 48.33 per cent of the IKSL users disagree and 39.00 per cent of the users of mkisan agree that existing infrastructure of ICTs in not enough to meet the needs of the farming community. 45.00 per cent of the IKSL users agree and 48.00 per cent of the mkisan disagree

Table 3 Attitude of respondents towards IKSL and M-Kisan

S.N.	Statement	Attitude					
		Agree		Disagree		Undecided	
		IKSL Users	M-Kisan Users	IKSL Users	M-Kisan Users	IKSL Users	M-Kisan Users
1.	ICT provides possible solutions to the present agricultural situation.	63 (35.00)	20 (20.00)	67 (37.23)	48 (48.00)	50 (27.78)	32 (32.00)
2.	ICTs can't meet location specific needs of the farmers.	13 (7.23)	20 (20.00)	80 (44.45)	46 (46.00)	87 (48.33)	34 (34.00)
3.	ICTs are potential tools to reach the need of the farmers.	25 (13.89)	40 (40.00)	91 (50.56)	28 (28.00)	64 (35.56)	32 (32.00)
4.	Farmer's feedback is very fast through ICTs than traditional method.	34 (18.88)	8 (8.00)	123 (68.34)	52 (52.00)	23 (12.78)	40 (40.00)
5.	Illiteracy will not deter farmers in availing ICTs services.	93 (51.67)	34 (34.00)	66 (36.67)	35 (35.00)	20 (11.12)	31 (31.00)
6.	ICTs cannot deliver personalized information.	80 (44.45)	78 (78.00)	58 (32.22)	12 (12.00)	42 (23.34)	10 (10.00)
7.	ICT based Extension services assist the farmers in planning and decision making aspects in Agriculture.	93 (51.67)	29 (29.00)	26 (14.44)	44 (44.00)	61 (33.89)	26 (26.00)
8.	ICTs services are distant dream far resource poor farmers.	32 (17.77)	68 (68.00)	124 (68.88)	17 (17.00)	24 (13.33)	15 (15.00)
9.	Farmers can get remunerative price to their produce through ICT based market intelligence.	25 (13.88)	49 (49.00)	107 (59.44)	40 (40.00)	48 (26.67)	11 (11.00)
10.	Expert advice makes the farmers enterprises/activities productive.	108 (60.00)	44 (44.00)	42 (23.33)	40 (40.00)	30 (16.67)	16 (16.00)
11.	All kind of information exchange possible only through ICTs.	124 (68.88)	39 (39.00)	32 (17.77)	44 (44.00)	24 (13.33)	17 (17.00)
12.	Existing infrastructure of ICTs in not enough to meet the needs of the farming community.	35 (19.45)	39 (39.00)	87 (48.33)	31 (31.00)	58 (32.22)	30 (30.00)
13.	Only resources full farmers can get the benefit of the ICTs.	81 (45.00)	27 (27.00)	69 (38.34)	48 (48.00)	30 (16.67)	24 (24.00)
14.	Access to information centre at village level is boon to the community.	37 (18.88)	30 (30.00)	110 (68.34)	35 (35.00)	33 (12.78)	35 (35.00)
15.	Phone-in-live with scientists gives first hand information about queries.	34 (18.88)	8 (8.00)	123 (68.34)	52 (52.00)	23 (12.78)	40 (40.00)
16.	ICTs alone would solve the problems of farmers.	26 (14.44)	32 (32.00)	93 (51.67)	30 (30.00)	61 (33.89)	38 (38.00)
17.	ICT based pest/disease outbreak warning system facilitate farmers to take preventive measures.	162 (90.00)	48 (48.00)	17 (9.45)	34 (34.00)	1 (0.55)	18 (18.00)
18.	ICT Extension services avoid the personal Extension contact.	87 (48.33)	16 (16.00)	58 (32.22)	44 (48.33)	35 (19.45)	40 (40.00)
19.	ICT based Extension services provides new opportunity to build a skilled out knowledge community.	127 (70.55)	50 (50.00)	33 (18.33)	20 (20.00)	20 (11.12)	30 (30.00)
20.	ICT is valuable tools but it will never influence farmer's own decision making.	69 (38.34)	31 (31.00)	81 (45.00)	20 (20.00)	30 (16.67)	49 (49.00)
21.	Weather for costing through ICTs assists farmers in timely decision.	20 (11.12)	34 (34.00)	99 (55.00)	60 (60.00)	61 (33.89)	6 (6.00)
22.	ICT based Extension services are alternative the present Extension services.	108 (60.00)	44 (44.00)	42 (23.33)	40 (40.00)	30 (16.67)	16 (16.00)

that only resources full farmers can get the benefit of the ICTs. 68.34 per cent of the users of IKSL disagree and 35.00 per cent of the users of mkisan disagree as well as undecided by 35.00 per cent of the users that access to information centre at village level is boon to the community. 68.34 per cent of the users of IKSL disagree and 52.00 per cent of the users of mkisan also disagree that phone-in-live with scientists gives first hand information about queries. 51.67 per cent of the users of IKSL disagree whereas 38.00 per cent of the mkisan users are undecided that ICTs alone would solve the problems of farmers. 90.00 per cent of the users of IKSL agree and 48.00 per cent of the users of mkisan also agree that ICT based extension services provides information's related pest/disease outbreak warning system facilitate farmers to take preventive measures.48.33 per cent of the users of IKSL agree whereas 48.33 per cent of the users of mkisan disagree that ICT Extension services avoid the personal Extension contact. 70.55 per cent of the users of IKSL are agree and 50.00 per cent of the users of mkisan also agree that ICT based Extension services provides new opportunity to build a skilled out knowledge community.49.00 per cent of the IKSL users disagree whereas 49.00 per cent of the users of mkisan are undecided that ICT is valuable tool but it will never influence farmer's own decision making.55.00 per cent of the users of IKSL disagree and 60.00 per cent mkisan users also disagree that weather forecasting through ICTs assists farmers in timely

decision. 60.00 per cent of the users of IKSL agree and 44.00 per cent of the mkisan users agree that ICT based Extension services are alternative to the present Extension services. This findings is similar with the findings of Li et al (2009) and Seetharam (2010).

Overall Attitude of Respondents towards Iksl and M-Kisan

Table 4 Overall attitude of respondents towards IKSL and m-Kisan

S.N.	Category	IKSL Users (N=180)	M-Kisan Users (N=100)	Total (N=280)
1.	Least favourable(32 to 40)	39(21.66)	17(17.00)	56(20.00)
2.	Favourable(41 to 48)	118(65.55)	54(54.00)	172(61.42)
3.	Most favourable(49 to 56)	23 (12.78)	29(29.00)	52(18.57)
	Total	180 (100.00)	100 (100.00)	280(100.00)

From the table above it shows that both the IKSL users (65.55%) and the M-Kisan users (54.00 %) are having favourable attitude towards the ICTs extension based services. This findings is similar with the findings of Khondoker (2015)

Relationship between Selected Independent Variables and Attitude As Dependent Variables towards Ict Based Extension Services Delivery

Table 5 Relationship between selected independent variables and attitude as dependent variables towards ICT based extension services delivery.

S. No.	Independent Variable	IKSL Users (N=180)	M-Kisan Users (N=100)
1.	Age	0.139**	0.508**
2.	Caste	0.059	0.571
3	Annual Income	0.167**	0.160**
4	Family Size	0.703	0.814
5.	Education	0.416**	0.845**
6.	Occupation	0.416*	0.618*
7.	Land holding	0.059**	0.447**
8.	Economic Motivation	0.193**	0.544**
9.	Scientific Orientation	0.730**	0.469**
10.	Risk Preference Orientation	0.309**	0.938**

** Denotes significance level at 0.01.

*Denotes significance level at 0.05.

From the table above it is shown that for both IKSL users and m-Kisan users the factors like age, annual income, education, land holding, economic motivation, scientific orientation and risk preference orientation are positively significant with attitude at 0.05 percent level and occupation is positively significant at 0.01 percent level. This findings is similar with the findings of Arun Babu (2005) and Frempong *et al* (2006)

CONCLUSION

It is concluded based on the findings that respondents belonged to medium level of socio-economic background. The sampled farmer's attitude towards usefulness of ICT based extension service delivery was found to be favourable. Farmer's age, education, family type, annual income, mass media exposure, scientific orientation, and risk orientation were found to have had positive significant relationship with the usefulness of ICT based extension service delivery. It is therefore, recommended that ICT education should be build into extension delivery package of extension agents to farmers particularly the use of the mobile based application since this is capable of eliminating the series of wasteful trips to get at the extension personnel and vice-versa.

Farmers should be made to access ICT education through farmers school. ICT based extension service delivery should be stepped up in U.P. state ensuring productivity and generating income. There is need to design instructional materials which support the role of new ICT as a complement for conventional service delivery system. These could speed up the application of the ICT, and facilitate the exchange of the ideas among various stakeholders.

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