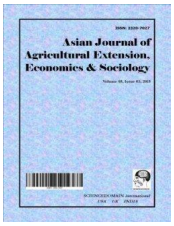

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Relationship between Characteristics of Farmers and Impact of ICT Enabled Web Portal (Krishinet)

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Authors' contributions

This work was carried out in collaboration between both authors. This work was part of Ph.D. research of author VS. He designed the study, collected data in respective research area and performed the statistical analysis and concludes the results and wrote the first draft of the manuscript under the guidance and supervision of author VLVK. Both authors read and approved the final manuscript.

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ABSTRACT

ICT can be used reasonably in transferring the modern agricultural technologies to the farmers. ICT has many applications in agricultural extension most especially in accessing required information and knowledge. Hence, the present investigation was carried out in Jabalpur, Patan, Sihora and Panagar Blocks of Jabalpur District of Madhya Pradesh. The main objective of the study was to analyse the relationship between selected profile characteristics of farmers and impact of Krishinet Portal. A total of 280 respondents were purposively selected for the study through simple random technique. The results of the study shown that majority of the respondents (48.57%) were middle aged (38-51 years), educated upto higher secondary level (24.64%), had medium family size (51.79%), had lower income (Rs. 33000 to 55000 p.a.) (38.22%), had small (2.5 to 5 acre) land holding (43.57%), had medium information seeking behavior (58.21%), had positive attitude towards KGK (61.78%), had positive attitude towards ICT (69.29%), had medium innovativeness (52.14%) and medium economic motivation (62.50%). The relationship between selected profile

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characteristics and impact of Krishinet portal indicated that education, annual income, operational land holding, information seeking behavior, attitude towards KGK and attitude towards ICT were positively significantly related, which means the respondents who is more educated, more annual income, large size of operational land holding, high information seeking behavior, positive attitude towards KGK and positive attitude towards ICT, getting more benefit from use of Krishinet portal.

Keywords: Profile characteristics; impact of krishinet; relationship.

1. INTRODUCTION

ICT can be used reasonably in transferring the modern agricultural technologies to the farmers. ICT has many applications in agricultural extension most especially in accessing required information and knowledge. Information and Communication Technologies are key enablers of globalization [1]. They allow for the efficient and cost-effective flow of information, products, people and capital across national and regional boundaries. The emergence of new agricultural development paradigms has led to challenging the conventional methods of delivering important services and the transformation of traditional societies into knowledge societies. ICTs have been developed as a tool for achieving meaningful societal transformation, which is believed to provide a reliable network in agricultural sector. ICT has been utilized as an extension tool, which has enhanced the information flow between agricultural extension services and their clients [2]. The application of ICT in agricultural extension has significantly increased in several countries where it has provided a medium to adequate access to agricultural information. In the changing scenario of Agriculture, the role of Agricultural related website and portal has significantly increased. Hence, there is a need for impact assessment of such type of ICT related portal and website specially designed for agriculture to fulfilling the need of farmers. Hence, the present study was undertaken with an objective to find out the relationship between the selected profile characteristics of farmers and impact of Krishinet Portal.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1 Literature Review

Research is a continuous process. For any scientific investigation, previous findings provide a basis for research. The review of literature is one of the important aspects in the research process. It helps the researcher to keep the work going in the right and appropriate direction. Hence, an attempt has been made to review the past works related to the present study and the same have been presented here. Dhaka and Chayal [3] in a study on farmers experience with ICTs on transfer of technology reported that the frequency with which the farmers used ICT services was correlated with socio-personal variables such as age, education, land holding, innovativeness and mass media exposure. It was also found that education, exposure to mass media and level of innovativeness was positively associated with frequent use of information services. Yadav [4] in a study entitled “Impact Assessment of ICT enabled Knowledge Sharing Agri-portals in Uttarakhand” found that maximum number of farmers (45.78%) had somewhat positive changes followed by some changes in produce (44.58%) due to adoption of the practices recommended by Agropedia. It was also found that 75.90 percent farmers had no change in income level while 22.89 percent had changes income status up to some extent. A large majority (85.54%) of farmers did not shift towards diversified cropping pattern and were still stuck with traditional system of cultivation followed by 13.25 percent farmers who changed to some extent and adopted the recommended diversified cropping system. Armstrong and Gandhi [5] in a study on factors influencing the use of Information and Communication Technology (ICT) tools by the rural famers in Ratnagiri District of Maharashtra found that the relationship between use of ICT tools and gender was not significant. However, there are some trends showing that female farmers were less likely to use ICT tools. The relationship between use of ICT tools and land ownership was found to be non-significant. Hassan et al. [6] in a study on factors influencing the perception of youth agro-based entrepreneurs towards the role of ICTs in increasing agro-business productivity found that there was significant correlation between age, electronic media usage, ICT usage and perception about ICT contribution. The highest negative correlation was found between age and ICT contribution. Further, ICT usage was found to have positive correlation with

perception towards ICT contribution. The results also revealed that there was no significant correlation between printed media usage and perception towards ICT usage. Raghuprasad et al. [7] in a study on analysis of knowledge level of farmers on utilization of ICT tools for farm communication found that variables such as material possession, social participation, extension participation, mass media exposure, education, income and cosmopoliteness had positive and significant relationship with knowledge of farmers about ICTs. Mittal and Mehar [8] in a study on socio-economic factors affecting adoption of modern Information and Communication Technologies by farmers in India found that large farm size was positively and significantly associated with all categories of information sources. This may be because large farmers who are more resourceful, have larger market surplus and are more aware and connected with all the available source of information unlike most of the small farmers who mainly produce to meet their subsistence needs. The significant positive relationship between education and use of modern ICTs implies that with increase in education, awareness increases and need to access different information sources arises. But it may also be that as modern ICTs information dissemination in India is mainly through text messages, literacy is a constraint that excludes less educated farmers from use of ICTs. Rebekka and Saravanan [9] in a study on access and usage of ICTs for agriculture and rural development by the tribal farmers in Meghalaya state of north-east India found that majority of young farmers with high level of education were found to have greater degree of availability and accessibility to ICTs as compared to old aged farmers with low level of educational qualification. The study also reported that farmers with higher level of income had higher purchasing ability of ICTs. The higher degree of orientation of farmers towards outside the social system, extent of social participation and favourable attitude towards ICTs also influenced the farmers to avail and access ICTs. It was also concluded that all the variables viz. age, education, annual income, cosmopoliteness, social participation and attitude towards ICTs had a significant association with the usage of ICTs by the farmers.

2.2 Research Hypothesis

H_{01}: There is no significant relationship between age of respondents and impact of Krishinet portal.

H_{02}: There is no significant relationship between education of the respondents and impact of Krishinet portal.

H_{03}: There is no significant relationship between family size of the respondents and impact of Krishinet portal.

H_{04}: There is no significant relationship between annual income of the respondents and impact of Krishinet portal.

H_{05}: There is no significant relationship between size of operational land holding of the respondents and impact of Krishinet portal.

H_{06}: There is no significant relationship between information seeking behavior of the respondents and impact of Krishinet portal.

H_{07}: There is no significant relationship between attitude of the respondents towards KGK and impact of Krishinet portal.

H_{08}: There is no significant relationship between attitude of the respondents towards ICTs and impact of Krishinet portal.

H_{09}: There is no significant relationship between innovativeness of the respondents and impact of Krishinet portal.

H_{10}: There is no significant relationship between economic motivation of the respondents and impact of Krishinet portal.

3. MATERIALS AND METHODS

The present study was purposively conducted in Jabalpur, Patan, Sihora and Panagar block of Jabalpur District of Madhya Pradesh to study the relationship between profile characteristics of farmers and impact of krishinet portal on farmers. Total 280 farmers were selected for the present study through simple random sampling by using chit method. Eight percent farmers from the registered list of users from the selected blocks were chosen for the study. In the present study, score was calculated to measure the impact of the portal and for correlation analysis with socio-economic, communication and psychological characteristics of farmers. For calculation of total score, responses were recorded in one of the following manner (a). Increase, no change or decrease with a corresponding score of +1, 0 and -1 respectively (b). Yes or No with a corresponding score of +1 or -1 respectively. The t-test was used to test the

significance of the correlation of coefficient. A descriptive research design was used to meet the objectives set forth for the study.

4. RESULTS AND DISCUSSION

4.1 Selected Profile Characteristics of Farmers towards Use of Krishinet Portal

It is clear from Table 1 that majority of the respondents (48.57%) were middle aged (38-51 years) followed by 37.50 percent belonged to young age group and rest 13.93 percent were from old age group. It was also found that maximum number of respondents were educated upto high school level (33.93%) followed by 24.64 percent respondents who were educated upto higher secondary level and 16.07 percent were educated upto graduate level. It was found that 13.93 percent respondents were educated upto primary level and only 11.43 percent respondents were educated upto middle school level. None of the represents were illiterate. It also showed that more than half of the respondents (51.80%) belonged to medium size family (8-11 members). The respondents belonging to small size families (4-7 members) accounted for only 26.79 percent of the sample and those with large families (12-15 members) were merely 21.42 percent in number. Data regarding total family income of respondents shows that maximum number of respondents (38.22%) belonged to lower income category followed by 31.43 percent respondents who belonged to lower middle income category. A sizeable number of respondents (15.71%) belonged to extreme lower income category and 7.86 percent respondents belonged to upper middle income category. Only 6.78 percent respondents belonged to high income category. It was also found that maximum number of respondents (43.57%) had small size landholding followed by 23.57 percent respondents had semi-medium size land holding. It was also found that 20.72 percent respondents had marginal size land holding and 8.21 percent respondents had medium size land holding and only 3.93 percent respondents had large size of land holding (above 25 acres). Information seeking behaviour of respondents reveals that majority (58.21%) of the respondents had medium level of information seeking behaviour, 21.43 percent of the respondents had high level of information seeking behaviour and only 20.36 percent respondents had low level of information seeking behaviour. It was found that (Table 1) majority of the respondents (61.78%) had positive attitude towards KGK and 21.43 percent respondents had neutral attitude towards KGK. It was also found that only 16.79 percent respondents had negative attitude towards KGK. As shown in Table 1, it was found that majority of the respondents (69.29%) had positive attitude towards ICTs and 17.50 percent respondents had neutral attitude towards ICTs. It was also found that 13.21 percent respondents had negative attitude towards ICTs.

4.2 Relationship between Selected Profile Characteristics of Farmers and Impact of Krishinet Portal

An attempt has been made to find out the association between independent variables and dependent variables through correlation coefficient (r) values and t-test was used to test the significance. The results are presented in Table 2 indicated that education (0.1982), annual income (0.1895), operational land holding (0.1355), information seeking behavior (0.1405), attitude towards KGK (0.1513), attitude towards ICT (0.1239) were positively significant related. Age (-0.0072), family size (0.0135), Innovativeness (-0.0049), economic motivation (-0.0022) and family size (0.0135) showed non-significant relationship with impact of Krishinet Portal. The positive relationship between education and impact of the portal was due to the fact that people with more education are generally more conversant with technology and are less apprehensive of it. They are also able to explore various features of the portal without any difficulty and as a result desire greater benefits. Findings of the study are similar to that of [10]. The significant positive relationship between annual income and impact of portal was due to the respondents whose annual income was more were more prone to adopt new technology in their farming and they were also ready to take risk in their farming. The findings of the study are similar to that of [9]. The significant positive relationship between size of the operational land holding and impact of the portal was due to the fact that respondents with more operational land holding are always searching for more income through new experiments in their farming and for that seek information from different sources including ICTs (Krishinet portal in this case). The fact that most of the content on the portal is related to agriculture and allied activities helps in the farm operations. As a result, respondents with larger holdings use the portal to get more benefits from their agricultural land. The results

of the study are in line with that of [3]. The significant positive relationship between information seeking behavior and impact of portal was due to the fact that more the number of sources used by the farmers to get agricultural information more are the impact of the portal. This is because people seeking information from various sources (including Krishinet portal) do so with the intention of applying that knowledge, which leads to greater benefits. The significant positive relationship between attitude of the farmers towards KGK and impact of portal was

Table 1. Selected profile characteristics of farmers towards use of Krishinet Portal

S. no.	Independent variable	Frequency	Percentage
1.	**Age**		
a)	Young (24-37 years)	105	37.50
b)	Middle (38-51 years)	136	48.57
c)	Old (52-65 years)	39	13.93
2.	**Education**		
a)	Illiterate	0	0
b)	Primary Level	39	13.93
c)	Middle Level	32	11.43
d)	High School	95	33.93
e)	Higher Secondary	69	24.64
f)	Graduate Level	45	16.07
3.	**Family size (Total Numbers)**		
a)	Small (4-7)	75	26.79
b)	Medium (8-11)	145	51.79
c)	Large (12-15)	60	21.42
4.	**Annual income**		
a)	Extreme Lower Income (< Rs.33000 p.a.)	44	15.71
b)	Lower Income (Rs. 33001-Rs. 55000p.a.)	107	38.22
c)	Lower Middle Income (Rs. 55001-Rs. 88800p.a.)	88	31.43
d)	Upper Middle Income (Rs. 88801-Rs. 150000p.a.)	22	7.86
e)	High Income (>Rs. 150000 p.a.)	19	6.78
5.	**Operational land holdings**		
a)	Marginal (<2.5 acre)	58	20.72
b)	Small (2.5-5.0 acre)	122	43.57
c)	Semi-Medium (5.1 – 10.0 acre)	66	23.57
d)	Medium (10.1 -25.0acre)	23	8.21
e)	Large (>25 acre)	11	3.93
6.	**Information seeking behaviour**		
a)	Low	57	20.36
b)	Medium	163	58.21
c)	High	60	21.43
7.	**Attitude towards KGK**		
a)	Negative (14-18)	47	16.79
b)	Neutral (19-23)	60	21.43
c)	Positive (24-28)	173	61.78
8.	**Attitude towards ICT**		
a)	Negative (16-22)	37	13.21
b)	Neutral (23-29)	49	17.50
c)	Positive (30-36)	194	69.29
9.	**Innovativeness**		
a)	Low (15-19)	51	18.21
b)	Medium (20-24)	146	52.14
c)	High (25-29)	83	29.65
10.	**Economic motivation**		
a)	Low (12-18)	38	13.57
b)	Medium (19-25)	175	62.50
c)	High (26-32)	67	23.93

Table 2. Relationship between characteristics of farmers and impact of Krishinet Portal

S. no.	Independent variable	r-value	t_{cal} value
1.	Age	-0.0072	-0.1167
2.	Education	0.1982	3.3697*
3.	Family size (Total Numbers)	0.0135	0.2250
4.	Annual income	0.1895	3.2171*
5.	Operational land holdings	0.1355	2.2790*
6.	Information seeking behavior	0.1405	2.3535*
7.	Attitude towards KGK	0.1513	2.5475*
8.	Attitude towards ICT	0.1239	2.0656*
9.	Innovativeness	-0.0049	-0.0833
10.	Economic motivation	-0.0022	-0.0366

** Significant at p<0.05 level*

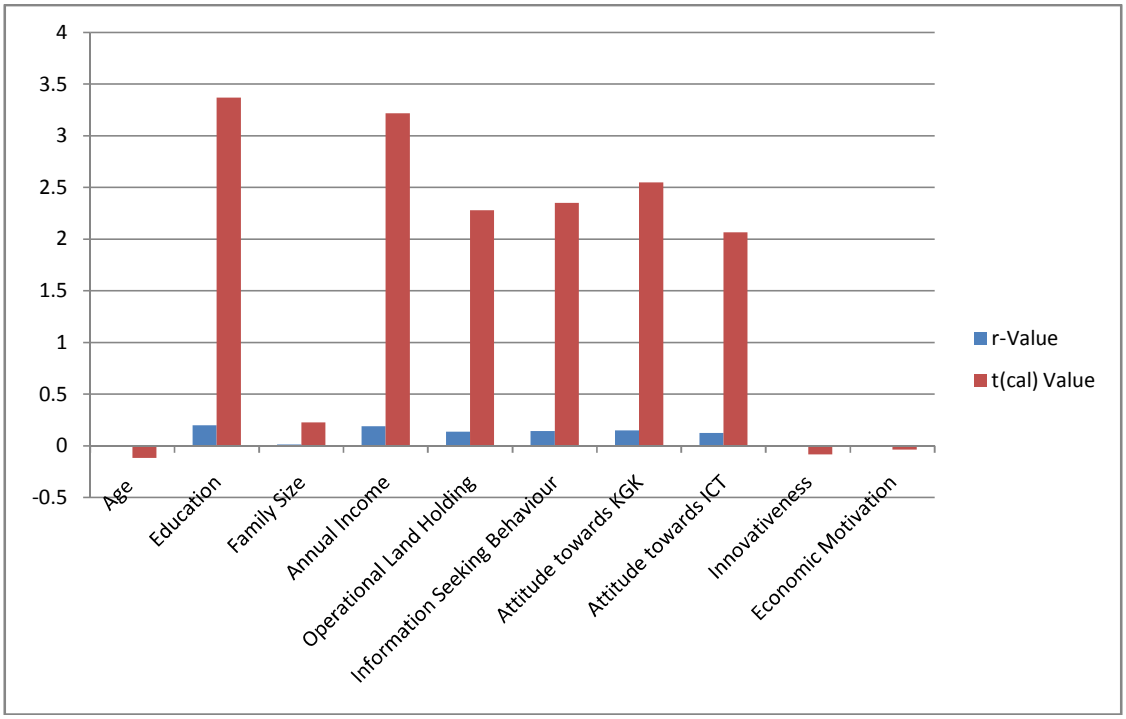

Fig. 1. Graphical presentation of relationship between characteristics of farmers and impact of Krishinet Portal

due to the fact that respondents having positive attitude towards KGK were likely to experience greater impact of portal. Krishi Gyan Kendra was the main locally available training centre of farmers not only for farm related activities but also different government schemes, Kaushal Vikas Kendra and it were found that the staffs of KGK were very cooperative. This led to a positive attitude of the farmers towards them and they frequently visit to KGK. The results of the study are similar to that of [11].

The positive and significant relationship between attitude towards ICTs and impact of portal because respondents having positive attitudes towards ICTs experience greater impact of the portal. This may be due to the fact that farmers already using ICT tools for other purposes such as mobile recharge, electricity bill payment, making caste and domicile certificate, land records, etc. are already aware of the benefits of ICTs. A positive opinion towards the source of information leads to greater acceptance and

application of the information provided. Farmers with positive attitude experience greater impact/change due to use of the portal. The findings of the study were in line with that of [9].

5. CONCLUSION

The application of Information and Communications Technologies (ICTs) in agriculture has become increasingly important. So the impact of such type of ICT related project is very necessary and in this study we found that Education, annual income, operational land holding, information seeking behavior, attitude towards KGK, Attitude towards ICT were positively significant related which means the respondents who is more educated, more annual income, large size of operational land holding, high information seeking behavior, positive attitude towards KGK and positive attitude towards ICT, getting more benefit from use of Krishinet portal and Age, family size, Innovativeness, Economic motivation and family size showed non-significant relationship with impact of Krishinet Portal which means these variables does not have any relationship with impact of Krishinet portal. In the field of agriculture ICT enabled web portal plays important role in providing need based and specific information to farmers. There is need to study such type of portal in different way so purpose of designed ICT enabled web portal must be fulfilled. Here, we can say that findings of the study would help to improve the content of any ICT portal designed for farmers or rural audience and it will provide in-depth understanding about the impact of ICT portal in particular area and the findings will also help agriculture policy makers to formulate appropriate policy for farmers and results of the study may help streamline strategies to overcome the problems faced by farmers in use of ICTs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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