

Accessibility and frequency of Information and Communication Technologies (ICTs) usages by Haryana Farmers

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ARTICLE INFO

Keywords: ICTs, Accessibility, Availability, Usages and Frequency

ABSTRACT

The study was carried out in four district of Haryana state namely Yamunanagar, Karnal, Hisar and Fatehabad, selected randomly. In total 240 respondents from 16 village were selected for analysis of Accessibility and frequency of ICT. Availability of mobile among the farmers was high followed by television, FM/Radio, internet accessed WhatsApp; face book; YouTube; E-mail, camera enabled mobile phone, Computer, E-book and CD/VCD were found available and accessed by the farmers. Frequent use of mobile phone by farmers was found followed by TV, FM/Radio, internet, WhatsApp; Mobile phone, face book, YouTube, Computer, E-mail, E-book and CD/VCD. Farmers use of ICTs for the Variety of purpose included marketing, schedule of water supply, supportive facts, plant protection measures, marketing of dairy product, health care practices, management practices, breeding and reproduction practices. Variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant whereas age exhibited negative significant with number of ICTs usage by farmers.

Introduction

Information and Communications Technology (ICT) in simple terms, can be defined as the basket of technologies, which assist or support in storage, processing of data/ information, or in dissemination/ communication of data/information, or both. ICT thus includes technologies such as desktop and laptop computers, software, peripherals and connection to the Internet that are intended to fulfill information processing and communication functions. According to Wikipedia (2008), the term ICT is the broader term of Information Technology (IT), to explicitly include the field of electronic communication, in addition to IT (the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware). The

relevance of ICTs for agricultural development in general and for agricultural extension in particular is extremely high for a country like India as ICTs are most natural allies to facilitate the outreach of agricultural extension system in the country. Despite a large, well-educated, well-trained and well-organized agricultural extension manpower, around 60% of farmers in the country still remain un-reached, unserved by any extension agency or functionary. Extension system is also entrusted with numerous other development activities, which ultimately weaken the focus on extension (Singh *et al.*, 2018). Of the 40%, who have some access to agricultural information, the major sources of this information are Radio and Television. The telephone has also made its presence felt on this scenario. Internet-supported Information-Kiosks are also serving the farming community, in many parts of the country. Hence ICTs are highly relevant for

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Received 13-01-2020; Accepted 14-04-2020

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Agricultural Extension scientists, researchers, functionaries and organizations. Several researchers, think that ICT applications as crop modeling tools, which have potential to minimize climate change effects on food availability and agricultural production. Extension system is also entrusted with numerous other development activities, which ultimately weaken the focus on extension (Singh *et al.*, 2018). E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes.

All stakeholders of agriculture production system need information and knowledge about these phases to manage them efficiently (Singh,2015). With this background the study to explore the accessibility and frequency of ICT usages was conducted.

Materials and Method

The study was carried out in four district of Haryana state i.e. Yamunanagar, Karnal, Hisar and Fatehabad, which were selected randomly. Radaur, and Chhachroli from Yamunanagar; Indri and Nilokheri block from Karnal districts were selected at first stage. Similarly villages namely Bakana, Androliand Bhagwanpur, Sherpur, Kalri, Kukhnai and Barhtal, Raipur were selected. From Hisar and Fatehabad, Bhattu and Fatehabad block were selected with villages Sathrod, Mizapur and Balsamand, Budhak, Dhand and Bnawali, Daulatpur and Hizrawan . In total 240 respondents viz., 60 farmers from each district, 30 farmers from each block and 15 farmers from each village were selected for study. Each of the selected respondents was interviewed personally. Interview for data collection with the help of interview schedule was conducted at the farmers' houses and occasionally at their farms as per availability for interview. Percentage, weighted mean, coefficient of correlation, multiple regression analysis etc. were used as tool of analysis. The correlation coefficient between the dependent and independent variables were calculated with the help of Pearson's formula of correlation coefficient. Multiple regression equation was fitted to find out the amount of variation caused by independent variables constituting personality traits of respondents on dependent variables.

Results and Discussion

Accessibility of ICT tools among farmers

The data for the level of availability and accessibility of ICTs among the farmers surveyed was found to be similar. As shown in Table 1, the availability and accessibility of mobile among the farmers was 100 per cent while television was found 60 per cent available as well accessible by farmers. Only 29.58 per cent shown access and availability to FM/Radio, 24.17 per cent to internet and 19.17 per cent to WhatsApp. Mobile phone camera was found available/access by 14.17 per cent followed by Facebook (7.91%), YouTube (6.25%), Computer (5.42%), E-mail (4.58%), E-book (2.50%) and CD/VCD (1.66%). Similar result was found by Adejo *et al* (2009) who also emphasized the use of ICTs in

Table 1 Availability and Accessibility of ICT tools among farmers

Sr. No.	ICT Tools	Frequency (Percentage) of accessibility and availability
1	Mobile	240(100.00)
2	T.V	144(60.00)
3	Mobile camera	34(14.17)
4	F.M/Radio	71(29.58)
5	Internet	58(24.17)
6	Whatsapp	46(19.17)
7	Facebook	19(7.91)
8	Youtube	15(6.25)
9	E-mail	11(4.58)
10	Computer	13(5.42)
11	E-book	6(2.50)
12	CD/DVD	4(1.66)

Figures in parentheses indicate percentages

boosting agricultural production among farmers. Farmers who were hooked up to new technologies fared better. ICTs promoted access to and sharing of information in agriculture and allied fields.

Frequency of ICT tools usage by farmers

The data presented in Table 2 shows that 63.75% of farmers used mobile phone very frequently, 30% frequently and 6.25% occasionally. Among the TV users 14.17% were found very frequently user, 39.58 per cent frequent users and 6.25 per cent occasional users . For mobile camera occasional users (5.42%) followed frequent users (4.58%) and rare users (4.17%). FM/Radio was found very frequently (10.83%), frequently (9.58%), occasionally (6.67%) and rarely (2.50%) used by framers. Similarly, internet users were found frequently (10.42%) followed by occasionally (8.75%), very frequently (2.50%) and rarely (2.50%). Only 8.33 per cent farmers used WhatsApp frequently followed by 7.08 per cent occasionally, 2.08 per cent very frequently and 1.66 per cent rarely. Face book was used by farmers frequently (3.75%), rarely (2.92%) and occasionally (1.25%). YouTube was used rarely (3.33%) and occasionally (2.92%) by farmers. Only 2.50 per cent frequently and 2.08 per cent rarely used E-mail. Computer usages by 3.33 per cent was occasionally and 2.08 per cent as frequently. E-book was found frequently (1.25%) and rarely (1.25%) whereas CD/VCD used by farmers only rarely (1.66%). Sharma *et al* (2012) pointed that about 98.3 per cent of the farmers in Punjab possessed mobile phones.which indicated that there is an increased penetration of ICTs among rural populations and therefore if appropriately used it can offer huge scope for development in rural areas. Kumar *et al.* (2017) found that farmers faced the problem of the cost of computers/smartphones. WhatsApp has proved to be potential to construct knowledge (Nain *et al.*, 2018).

Table 2 Frequency of information and communication technologies (ICTs) usage by farmers

Sr. No.	Category	Percentage of Frequency			
		Very Frequently	Frequently	Occasionally	Rarely
1.	Mobile	153(63.75)	72(30.00)	15(6.25)	0
2.	TV	34(14.17)	95(39.58)	15(6.25)	0
3.	Mobile Camera	0	11(4.58)	13(5.42)	10(4.17)
4.	FM Radio/ Radio	26(10.83)	23(9.58)	16(6.67)	6(2.50)
6.	Internet	6(2.50)	25(10.42)	21(8.75)	6(2.50)
7.	Whatsaap	5(2.08)	20(8.33)	17(7.08)	4(1.66)
8.	Facebook	0	9(3.75)	3(1.25)	7(2.92)
9.	YouTube	0	0	7(2.92)	8(3.33)
10.	E-mail	0	6(2.50)	0	5(2.08)
11.	Computer	0	5(2.08)	8(3.33)	0
12.	E-Books	0	3(1.25)	0	3(1.25)
13.	CD/DVD	0	0	0	4(1.66)

Figures in parentheses indicates respective percentages.

Table 3 Number of Information and Communication Technologies (ICTs) tools use by farmers

Category	Frequency(percentage)
Low(up to 3)	127(52.92)
Medium(4-5)	62(25.83)
High (>6)	51(21.25)

Table 3 reveals that majority (52.92%) of the respondents found the number of ICT tools to be of low level followed by medium (25.83%) and low (21.25%) level of number of ICT tools used by farmers. Finding by Chauhan *et al.* (2004) reported that 56 per cent totally and 30 per cent partly assumed that the development of Indian farmers was possible through Internet based information. Internet was best mean to learn all new things for young generation, thus, 82 percent of the farmers wished their children to make positive use of internet at the same time 81 per cent of them had judgment that farmers should make use of internet. Jain *et al.* (2012) observed that the extent of the farm women's access to ICT depicted a direct relationship with farm size. Majority of the young farmers preferred social media viz. Youtube, WhattsApp and Facebook as a source of agricultural information.

The perusal of data in Table 4 depicts the correlation and regression coefficient between availability/accessibility of ICTs and independent variables of farmers. The data revealed that the variables education (0.559), socio-economic status (0.575), land holding (0.036),extension contact (0.601), mass media exposure (0.581), scientific orientation (0.532), economic motivation (0.536) and risk orientation (0.571) exhibited positive and signif-

Table 4 Relationship between personal variables and availability of ICTs tools

S. No.	Variables	Correlation coefficient (r)	Regression coefficient	't' values
1.	Age	-0.584*	-0.071	-1.404*
2.	Education	0.559**	0.225	0.549*
3.	Socio-economic status	0.575**	0.342	2.237**
4.	Landholding	0.036*	0.017	-0.171*
5.	Irrigation facilities	0.070NS	-0.117	-0.665*
6.	Extension contact	0.601**	0.564	2.401**
7.	Mass media exposure	0.581**	0.327	1.030*
8.	Scientific orientation	0.532**	-0.198	1.227*
9.	Economic motivation	0.536**	-0.759	2.827**
10.	Risk orientation	0.571**	0.252	1.376*

*Significant at 5% level of significance and, ** Significant at 1% level of significance R²=0.4044

icant whereas age (0.584) exhibited negative significant relation. Irrigation facilities (0.070) exhibited non-significant but positively correlated with availability of ICTs by farmers. Similarly regression coefficient of variables education (0.549), socio-economic status (2.237),extension contact (2.401), mass media exposure (1.030), scientific orientation (1.227), economic motivation (2.827) and risk orientation (1.376) exhibited positive and significant relation whereas age (1.404),land holding (0.171) and irrigation facilities(0.665) negatively significant with availability/ accessibility of ICTs by farmers. Osondu *et al.* (2015) reported that farmers had a clear and favorable perception of the relevance of ICTs in extension service delivery. Farmers' education level and income had a positive significant relationship with the number of ICTs farmers in Imo State. It is therefore recommended that ICT education should be built into the extension delivery package of extension agents to farmers particularly the use of the mobile phone since this was capable of eliminating the series of wasteful trips to get at the extension workers and vice versa.

The data presented in Table 5 indicate the correlation and regression coefficient between number of ICT tool usages and personal variables of farmers. The data revealed that out of 10 variables, only seven variables education (0.903), socio-economic status (0.405),extension contact (0.929), mass media exposure (0.926), scientific orientation (0.403), economic motivation (0.905) and risk orientation (0.316) exhibited positive and significant whereas age (0.897) exhibited negative significant relation with number of ICTs used by farmers. However, land holding (0.017) and irrigation facilities (0.141) was non-significant but positively correlated with number of ICTs used by farmers. Similarly regression coefficient of variables; education (1.931), socio-economic status (3.067),extension contact (4.785), mass media exposure (3.183), scientific orienta-

Table 5 Relationship between respondent's personal variables and Number of ICTs tools using by farmers

S. No.	Variables	Correlation coefficient (r)	Regression coefficient	t values
1.	Age	-0.897*	-0.004	-0.329*
2.	Education	0.903**	0.181	1.931*
3.	Socio-economic status	0.405*	0.107	3.067*
4.	Landholding	0.017NS	-0.018	-0.804*
5.	Irrigation facilities	0.141NS	-0.068	-1.690*
6.	Extension contact	0.929**	0.256	4.785**
7.	Mass media exposure	0.926**	0.230	3.183**
8.	Scientific orientation	0.403*	0.074	2.004*
9.	Economic motivation	0.905**	0.090	1.470*
10.	Risk orientation	0.316*	0.150	0.590*

*Significant at 5% level of significance and, ** Significant at 1% level of significance R² = 0.9030

tion (2.004), economic motivation (1.470) and risk orientation (0.590) exhibited positive and significant relationship whereas age (0.329), land holding (0.804) and irrigation facilities (1.690) negatively significant with number of ICTs used by farmers. Meera *et al.* (2004), Dhaka *et al.* (2010) found that education was positively associated with ICT use in both correlation and regression indicating that as education level improves the usage of various information services provided in i-kisan was also improved. Study conducted in Rajasthan India also showed that land holding did not have any significant relationship with ICT use by the farmers.

Conclusion

Availability and access of mobile among the farmers was found cent percent followed by television, FM/Radio, internet, WhatsApp, mobile phone camera, Facebook, YouTube, computer, e-mail, e-book and CD/VCD. The per cent of frequency of use of mobile phone by farmers was found high followed by TV user, FM/Radio, internet, WhatsApp, mobile phone camera, Face book, YouTube, computer, E-mail, E-book and CD/VCD. Variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant whereas age exhibited negative significant with number of ICTs usage by farmers. However, land holding and irrigation facilities were non-significant but positively correlated with number of ICTs usage by farmers. Similarly, regression coefficient of variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant with number

of ICTs and age, land holding and irrigation facilities negatively significant with number of ICTs usage by farmers. variables education, socio-economic status, land holding, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant whereas age exhibited negative significant but irrigation facilities non-significant but positively correlated with availability/accessibility of ICTs by farmers. Similarly, regression coefficient of variables education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation and risk orientation exhibited positive and significant with availability of ICTs and age, land holding and irrigation facilities negatively significant with availability/accessibility of ICTs by farmers.

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