



Utilization Pattern of Information and Communication Technologies by the Farmers of South Gujarat

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ABSTRACT

Background: Communication by electronic means. The ICTs have the potential to deliver timely and reliable information in the local dialect which helps in better risk management and acts as a catalyst to enable better adoption of improved technologies and farming practices.

Methods: We surveyed 120 households from Navsari (60) and Valsad district (60) of South Gujarat from January 2022 to May 2023 to assess the utilization pattern of information and communication technologies by the farmers. An ex-post facto research design was employed for the study and the collected data were analysed by using percentage, mean, standard deviation and rank. A correlation coefficient (r) was also used to test the association between independent and dependent variables.

Result: It was observed that the majority of the respondents had a moderate level of extent of utilization of ICTs and perceived a medium level of effectiveness of ICT tools. The great majority of the respondents had a medium level of knowledge about ICTs and had favourable attitudes towards ICTs. Our analysis also helped us identify several problems faced by them in utilization of ICT tools.

Key words: Effectiveness, Farming practices, Information communication technology, Information transfer, Utilization.

INTRODUCTION

In order to close the knowledge gap and lessen the information imbalance that exists between farmers and regions, information and communication technologies might be extremely important. For the past 50 years, conventional methods have been the primary means of providing information and communication support. Practically speaking, communication is what extension services are all about. The goal of extension services-both personnel and methods-is to enlighten and educate rural residents. Historically, extension has used field visits, training and demonstrations to teach farmers about knowledge from researchers or outside specialists. These programs, which primarily focus on in-person instruction, have a slow propagation rate, a modest scope and a restricted geographic reach. Because farmers are dispersed over a broader geographical area, the bulk of them cannot be reached by the restricted extension service. For the extension system, this gap still presents a challenge today. The extension system is still in the process of fully utilizing various communication modalities and ICT apparatus. ICTs have the ability to provide accurate, timely information in the local language, which improves risk management. This may serve as a stimulant to promote greater uptake of enhanced farming techniques, seed types and technology (Mittal and Tripathi, 2009). ICT has developed into a potent instrument that offers previously unheard-of possibilities to more successfully accomplish important developmental goals (ADB, 2003).

The old methods of distributing information have clearly given way to more contemporary information delivery systems in recent years and ICTs are becoming more and more recognized as a catalyst for economic expansion.

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Additionally, it looks to have a significant impact on social service delivery and improve the efficiency of government management. India has shown itself to be a nation with a strong ICT foundation. Large sums of money are being invested in order to maximize the potential of India's ICT sector. The most economical way to make such investments would be to combine the resources of India's agriculture sector and information technology industry, making the two ends of the thread meet (Devaraja, 2011).

Raza *et al.* (2020) studied that most respondents (90.3%) in the study area were small farmers with a 45% literacy rate. About 85.0, 79.8 and 45.8% of respondents had mobile, TV and radio in their possession. While, internet, computers and landline phones had 17.8, 9.3 and 3.8% of respondents, respectively. Mobile, TV and radio were greatly used ICT tools while internet, computer, helpline and landlines were least used. Mobile (M=4.06), TV (M=3.96) and radio (M=3.96) were perceived as effective

at almost a high level on the likert scale. Other tools including agri. websites, computers, helplines and landlines were comparatively less effective pertinent to high cost, accessibility and accuracy of information. According to this study, modern ICTs can effectively communicate higher than traditional sources. This study recommends that information departments and agricultural directorates amend the contents of modern tools according to farmers' needs and socio-economic conditions for escalated usability.

MATERIALS AND METHODS

For the study, an ex-post-facto research design was adopted. A systematic empirical investigation in which the independent variables have not been explicitly managed because they have already occurred or because they are fundamentally unmanageable is known as an ex-post-facto design, according to Robinson (1976). Additionally, it was mentioned that ex post facto research based on inferred theories had discovered behavioral phenomena in conditions that investigated the occurrence of a phenomenon. Farmers in the districts of Valsad and Navsari participated in the survey. A total of 120 farmers, 60 from the Navsari district and 60 from the Valsad district, were chosen by using simple random sampling method to make up the study's sample size.

Two dependent variables, two additional related variables and all 14 independent variables were chosen. Farmers were questioned as respondents after an interview schedule was created with the goals in mind. Farmers were asked about their knowledge and availability of ICT in the village area in the last six years (2017-2022) based on their memory. and documented it with the help of frequency and percentage. The percentage, mean, standard deviation and rank were used to analyze the data that were gathered. Another method for examining the relationship between independent and dependent variables was to apply a correlation coefficient (r).

RESULTS AND DISCUSSION

Extent of ICTs used for accessing agricultural information

It was found as mentioned in Table 1 that most respondents (62.50%) used ICTs to a moderate degree, with just 19.17 and 18.33 per cent indicating higher and lower levels of ICT use, respectively.

The vast majority of respondents (81.67%) reported moderate to high levels of ICT use. Farmers' creative use of ICT tools and awareness of the varied needs of their operations may be the likely explanation for this discovery, since they play an effective role in the agricultural extension system.

Effectiveness of ICTs in accessing agricultural information

Table 2 demonstrates that the majority of respondents (56.66%) thought that ICT tools were useful at a medium

level, whereas 24.17 and 19.17% thought that ICT tools were effective at a higher and lower level, respectively.

The majority of respondents (80.83%) generally believed that ICT tools were somewhat effective.

Knowledge and attitude of farmers towards ICTs

Knowledge about ICTs

The information shown in Table 3 indicates that a majority of farmers (71.66 per cent) had a medium level of ICT knowledge, whereas 14.17 per cent had both a high and low level of ICT knowledge.

The majority of respondents (85.84%) generally possessed high to moderate levels of ICT knowledge. Their moderate usage of ICTs, moderate consumption of mass media and regular need to obtain relevant information sources could be the likely causes.

Attitude towards ICTs

According to the statistics in Table 4 the majority (76.67%) of farmers had a positive attitude toward ICTs, with 18.33 and 5.00 percent having a more favorable and less favorable view, respectively.

Table 1: The extent of ICTs used for accessing agricultural information by the farmers. (n=120)

Categories of extent of ICTs use	Frequency	Percentage
Lower	22	18.33
Moderate	75	62.50
Higher	23	19.17
Total	120	100.00

Table 2: Distribution of the respondents according to the effectiveness of ICTs. (n=120)

Categories of effectiveness	Frequency	Percentage
Low	23	19.17
Medium	68	56.66
High	29	24.17
Total	120	100.00

Table 3: Distribution of the respondents according to knowledge about ICTs. (n=120)

Categories of knowledge	Frequency	Percentage
Low	17	14.17
Medium	86	71.66
High	17	14.17
Total	120	100.00

Table 4: Distribution of the respondents according to attitude towards ICTs. (n=120)

Categories of attitude	Frequency	Percentage
Less favorable	06	05.00
Favorable	92	76.67
More favorable	22	18.33
Total	120	100.00

Table 5: Relationship of farmers' profile with extent of ICTs use and effectiveness in accessing agricultural information. (n=120)

Variables	Coefficient of correlation (<i>r</i>)	
	Extent of ICTs use	Effectiveness of ICTs
Age	-0.074	0.063
Education	0.193**	0.171**
Land holding	0.089	-0.017
Occupation other than agriculture	0.090	-0.026
Opinion leadership	0.134	0.139
Extension participation	0.223**	0.163**
Training received	0.185**	0.162**
Mass media exposure	0.217**	0.155**
Information source accessibility	0.223**	0.156**
Innovativeness	0.241**	0.176**
Scientific orientation	-0.129	0.100
Social participation	0.200**	0.167**
Economic motivation	0.196**	0.164**
Cosmopoliteness	-0.061	0.043NS

**Significant at 0.01 level.

Thus, the preceding results reveal that the majority of respondents (95.00 per cent) had a favorable to very favorable view about ICT apparatus. Farmers perceive benefits from using ICT tools in farming and animal husbandry and they actively participate in researching agricultural information for their operations.

Relationship of farmer's profile with their extent of ICTs use by the farmers

Table 5 shows a strong and positive relationship between the amount of ICT use and education (0.193), participation in extension programs (0.223), training received (0.185), exposure to mass media (0.217), access to information sources (0.250), willingness to be creative (0.241), social participation (0.200) and economic motivation (0.196) at the significance level was 0.05.

Compared to the previous results, we found that the level of ICT use was favourably and non-significantly related to land ownership (0.089), occupation (0.090) and opinion leadership (0.134). We found that the level of ICT use was adversely and non-significantly related to age (-0.074), scientific orientation (-0.129) and cosmopoliteness (-0.061).

Relationship of farmer's profile with the effectiveness of ICTs in accessing the agricultural information

Table 5 shows that education (0.171), extension participation (0.163), training received (0.162), mass media exposure (0.155), information source accessibility (0.156), innovativeness (0.176), social participation (0.167) and economic motivation (0.164) all have a positive and highly significant relationship with ICT effectiveness.

The significance test results show a connection between the respondents' education level and the adoption of good agricultural practices. The respondents' education level had a significant impact on the adoption of beneficial farming practices. The adoption of effective farming

techniques grew as respondents' education levels increased. On the other hand, we found that the effectiveness of ICTs positively and non-significantly correlated with age (0.063), opinion leadership (0.139), cosmopoliteness (0.043) and scientific orientation (0.100), while land holding (-0.017) and occupation other than agriculture (-0.026) negatively and non-significantly correlated.

CONCLUSION

Based on the above discussion, we infer that the majority of respondents used ICTs to a moderate extent and judged ICT tools to be of medium effectiveness. The vast majority of respondents reported a medium level of understanding of ICTs and a positive attitude towards them. education, extension engagement, training obtained, mass media exposure, information source accessibility, innovativeness, social participation and economic motives all showed a good and very significant relationship with the level of ICT use. We found a positive and strong association between ICT effectiveness and education, extension engagement, training acquired, mass media exposure, access to information sources, innovativeness, social participation and economic incentives.

Conflict of interest

The authors declare that they have no known competing financial interests, personal relationships, on other conflicts of interest that could have appeared to influence the work reported in this manuscript.

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