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A Study on Utilisation Pattern of E-tools (ICT-tools) by Extension Personnel Working in Developmental Departments in Vijayapur District, Karnataka, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The use of Internet and mobile by extension personnel is now very common in India. Extension personnel use the Internet for social, research and educational purposes. This study focused on exploring the utilisation pattern of extension personnel about e-tools. The data were collected from 135 extension personnel through pre-tested interview schedule, where the questions were designed to generate information on, e-tools (ICT-tools) usage, information needs and the actual use of e-tools. The results identified overall utilization about e-tools; it was found that, 35.56 per cent of the extension personnel belonged to high utilization category of e-tools. Further, it indicated the extent of utilisation of e-tools in the order of priority were;'Whats App group' (82.96 %), followed by 'Krishi Marata Vahini' (22.96 %), 'Raitamitra' (20.74 %), 'Video conference' (10.37 %), 'KMAS' (8.89 %), 'Information kiosk' (8.89 %) and 'Agromet advisory Service' (2.22 %). While coming to the purpose of utilisation of e-tools, 'Whats App group', 'krishi marata vahini' and 'Raitamitra', are most commonly used for their personal and professional work. While the extension personnel had low utilization of e-tools like can be increased only through the education and training. It can be overwhelmed with more research, experience and training programe. Extension personnel should be made aware about e-tools and need to be trained on use of e-tools.

Keywords: Internet; e- tool; information and communication technology; extension personnel; utilisation pattern; Raitha Mitra Yojana'.

1. INTRODUCTION

"Any ICT intervention that improve the livelihoods of poor rural families will likely to have significant direct and indirect impacts on enhancing agricultural production, marketing and post-harvest activities – which in turn further contribute to poverty reduction". The term ICT was coined by Stevenson in 1997 [1]. ICT stands for the information and communication technologies which can be broadly interpreted as technologies that facilitate communication, processing and transmission of information by electronic means. It is defined as technologies involved in collecting, processing, storing, retrieving, dissemination and implementation of data and information using microelectronics, optics, telecommunication and computers.

"ICT in agriculture is potential ground concentrating on the growth and development of the primary sector and other related fields. It also helps in the development of agriculture policy to ensure an equitable diffusion of technologies. The diffusion of advanced ICTs has contributed for the development of economy of both developing and developed nations" [2].

"ICTs facilitate the access to local and global information and knowledge. They are very helpful and are the modest ways for two-way communication. ICTs and their application have enormous impact due to growth and development in telecommunication; their tools combined with computer technology require enhanced network-based information and communication podiums, such as internet. Telecommunications infrastructures are the driving forces of ICTs as they have capacity to link various ICT elements together irrespective of locations and offer a congregating platform for this element. The merging of various elements of ICTs has improved development in all domains of human activities" [3].

"The extension personnel are using a wide variety of e-tools for seeking and dissemination of improved technologies to the farming community. The knowledge on e-tools by the agriculture extension personnel is a prerequisite for the use of e-tools" [4]. Manty [5] found that for getting the information, extension personnel in North Karnataka used web based search engine (100%) followed by internet (97.5%), web based agricultural information portals (95%), kiosk (87.5%), decision support system (85%), e-newspaper (82.5%), video conferencing (77.5%), Similarly, Verma et al. [6] in their study found that, the use of computers is made by extension personnel to the extent of 43.76 per cent in agricultural operations. They further revealed that the use of internet in agriculture is made to the extent of 39.81 per cent, use of mobile phones 68.69 per cent, use of Kissan call centers 36.79 per cent and the use of information kiosks 27.72 per cent. They concluded that majority of extension personnel apply ICT tools in their agricultural extension activities.

"The Karnataka Government initiated 'Raitha Mitra Yojana' which translates to 'Farmer's

Friend Scheme' during 2001 for providing effective extension services to the farmers" [7]. "Raitha Samparka Kendras (RSKs) also known as Agricultural Extension Centres are established under Raitha Mitra Yojane at hobli or sub-block level i.e., between village level and block level of administration to address a wide range of local issues related to agriculture. The RSKs act as a common platform for farmers to access and interact with agriculture based technology and information at the grass root level. These Kendras are intended to provide technical information on crop selection, crop production, and crop protection related know-how, market and weather information, etc., to the farmers. They also provide seed and soil testing facilities locally and facilitate on-site provision of critical inputs like seeds, bio-fertilizers, plant protection chemicals, etc. RSKs also provide a forum for the on-farm demonstration on new technologies developed by both public and private sectors and act as an interface for public and (or) private sector technologies and inputs" [4].

Access to such information sources is a crucial requirement for the sustainable development of the farming systems. Hence the present study was undertaken to assess the utilization pattern of extension personnel about e-tools.

2. MATERIALS AND METHODS

The study was conducted using "Ex-post facto" research design in Vijayapur district of Karnataka during 2019. Vijayapur districts were selected purposively for the present study since no such study was conducted in Vijayapur on ICTs and sampling area comes under college of Agriculture Vijayapur jurisdiction. All the taluks coming under Vijayapur district i.e., Vijayapur, Basavana Bagewadi, Sindagi, Indi and Muddebihal were considered and selected for the study. A list of extension personnel working in State Department of Agriculture and State Department of Horticulture were obtained from respective district offices. A total of 135 Extension personnel were selected for the study i.e. 105 Extension personnel in Agriculture department and 30 Extension personnel in horticulture department were working at the time of investigation. All the Agriculture Officers (AO) and Assistant Agriculture Officers (AAO) working in department of Agriculture and all the Assistant Horticulture Officers (AHO) and other staff (SADH, ADH) working in department of horticulture at the time of investigation are considered for the study, based on availability of extension personnel. Purposive sampling method was adopted. The e-tools selected for the study were Raitamitra, Krishi Maratha vahini, Whats app groups, mobile, agriculture information Kiosks, video conferencing, Kissan mobile advisory service and Agromet services.

Data was collected for study with the aid of well designed, pre-tested and comprehensive schedule exclusively prepared for the study. Primary data was elicited from the extension personnel through personal interview method and statistical tools of analysis in the study are mean, frequency percentage standard deviation.

3. RESULTS AND DISCUSSION

3.1 Overall Utilisation of E-Tools by the Extension Personnel

The results in Table 1 indicated that of the overall utilisation of e-tools by the extension personnel in Vijayapur district, almost equal number of respondents were found to be in all the utilisation categories such as, 35.56 per cent respondents belonged to medium category, followed by low (33.33%) and high (31.11%) utilisation category. These findings are partially supported by the findings of Vishwatej [8], Shakir et al. [9], Manty [5] and Dhaka and Chayal [10].

3.2 Extent of Utilisation of E-Tools

The data in Table 2 depicted the extent of utilization of individual e-tools by the extension personnel of developmental departments in Vijayapur district. Majority (86.67%) of extension personnel were utilising 'Krishi Marata Vahini' services, out of which 22.96 per cent of

Table 1. Distribution of the extension personnel according to overall utilization of e-tools (n = 135)

Sl. No.	Category	Frequency	Percentage
1	Low (< 27.30)	45	33.33
2	Medium (27.30 to 34.07)	48	35.56
3	High (>34.07)	42	31.11
Mean = 30.69		S.D. = 7.96	

extension personnel were using daily once, followed by weekly twice (22.22%), weekly once (17.04%), monthly once (10.37%), fortnightly (8.15%) and whenever needed (5.93%). There was a need for extension personnel to update with prices in nearby markets and most of the extension personnel were registered to the services to get daily updates of market prices, even many farmers sharing the market information with fellow farmers.

Majority (87.11%) of extension personnel were utilising 'Raitha Mitra' services, out of which 20.74 per cent of respondents were using daily once, followed by weekly twice (38.52%), weekly once (13.33%), monthly once (5.93%), whenever needed (5.93%) and fortnightly (2.96%) to know about new schemes, information on agriculture and allied information.

Majority (92.59%) of extension personnel were utilising services of 'Whats App groups', out of which 82.96 per cent of extension personnel were using daily once, followed by weekly twice (7.41%) and weekly once (2.22%). All these e-tool is quite common and very popular now a day's. 'Whats App' was preferred more since this tool was simpler, easy to use, low internet data requirement; hence, it was increasingly popular in rural India.

Larger numbers (89.63%) of extension personnel were utilising 'Information kiosk' services, out of which 23.70 per cent of the extension personnel were using monthly once, followed by fortnightly (20.74%), weekly once (14.81%), weekly twice (12.59%), daily once (8.89%) and whenever needed (8.89%). Less utilisation is might be due to non- availability, low accessibility and poor maintenance of Kiosk in the study area.More than half of the extension personnel (54.81%) were utilising 'Kisan Mobile Advisory Services' services, out of which 14.81 per cent of the extension personnel were using weekly twice, followed by monthly once (12.59%), weekly once (11.85%), whenever needed (8.89%), fortnightly (4.44%) and daily once (2.22%). Most the farmers were growing the field crops and occurrence of pest and disease were high, to control the pest and disease incidence farmers were regularly used to meet extension personnel. Hence, to advice farmers the extension personnel were regularly utilizing the KMAS messages and also KVK sends the messages to the extension personnel weekly. findings are in line with Verma et al. [11].

About half of the extension personnel (47.41%) were utilising 'Agromet Advisory Services', out of which 11.11 per cent of the extension personnel were using weekly twice, followed by whenever needed (9.63%), daily once (8.89%), monthly once (7.41%), weekly once (6.67%) and fortnightly (3.70%). The possible reasons may be lack of awareness among extension personnel might be the reason for low utilisation in Vijayapur district.

Majority of extension personnel (78.52%) were utilising 'Videoconferencing', among the respondents 25.19 per cent were using weekly twice, followed by weekly once (14.81%), fortnightly (14.81%), daily (10.37%), monthly once (8.15%) and using whenever needed (5.19%), respectively. It helps to give training to the extension personnel. 'Videoconferencing' is available in their mobile, hence, most of the respondents used to chat with family, friends and colleagues. Results are similar with Bahgat and Antar [12].

3.3 Utilisation Pattern of E-Tools for Specific Information

The data in Table 3 indicated the utilisation of e-tools by the extension personnel of developmental departments in Vijayapur district. For keeping "up-to-date subject information" the e-tools used were 'Raitamitra' (42.22%), 'Whatsapp group' (9.63%), 'Agromet Advisory Services' (5.19%) and 'Krishi Marata Vahini' and 'KMAS' (3.70%) were equal in usage.

To increase their general knowledge about society and to get specific information about agriculture these were the e-tools used by the extension personnel.

Whereas, the e-tools used "To gain current and general information" were 'Whatsapp group' (14.82%), 'Information Kiosk' (14.82%), 'Raitamitra' (11.11%), 'Krishi Marata Vahini' (4.44%) and 'Agromet Advisory Services' (4.44%). All the above mentioned e-tools are more useful sources of getting information, e.g. Information Kiosk picture with harmonized sound which made it easier for people to acquire, whereas, web-based portals were mainly for sharing information associated with agriculture and its allied discipline and also to get resolution by asking a question especially by the farmers, to update their knowledge level as well as to get market information (viz; price).

Table 2. Extent of utilization of e-tools (n = 135)

Sl. No.	e-tools	Extent of Utilization													
		Daily		Weekly twice		Weekly once		Fortnightly		Monthly once		Whenever needed		Never	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
1	Krishi Marata Vahini	31	22.96	30	22.22	23	17.04	11	8.15	14	10.37	8	5.93	18	13.33
2	Raitamitra	28	20.74	52	38.52	18	13.33	4	2.96	8	5.93	8	5.93	17	12.59
3	Whats app group	112	82.96	10	7.41	3	2.22	-	-	-	-	-	-	10	7.41
4	Information Kiosk	12	8.89	17	12.59	20	14.81	28	20.74	32	23.70	12	8.89	14	10.37
5	KMAS	3	2.22	20	14.81	16	11.85	6	4.44	17	12.59	12	8.89	61	45.19
6	Agromet Advisory Service	12	8.89	15	11.11	9	6.67	5	3.70	10	7.41	13	9.63	71	52.59
7	Video conference	14	10.37	34	25.19	20	14.81	20	14.81	11	8.15	7	5.19	29	21.48

Table 3. Utilisation pattern of e-tools for specific information (n = 135)

			e-tools						
Sl. No.	**Specific information**		**Krishi marata vahini**	**Raitamitra**	**Whats app group**	**Information kiosk**	**KMAS**	**Agromet advisory service**	**Video conference**
1.	For keeping up-to-date subject information	f	5	57	13	-	5	7	-
		%	3.70	42.22	9.63	-	3.70	5.19	-
2.	To gain current and general information	f	6	15	20	20	-	6	-
		%	4.44	11.11	14.82	14.82	-	4.44	-
3.	For finding relevant information in the area of specialization	f	4	40	9	16	8	5	-
		%	2.96	29.62	6.67	11.85	5.92	3.70	-
4.	For professional development	f	-	48	6	15		-	10
		%	-	35.56	4.44	11.11		-	7.41
5.	For communication/ for information share	f	-	-	51	-	-	-	-
		%	-	-	37.78	-	-	-	-
6.	Transfer of technology	f	-	-	89	-	-	-	-
		%	-	-	65.92	-	-	-	-
7.	Updates related market information	f	90	-	8	-	-	-	-
		%	66.67	-	5.93	-	-	-	-
8.	Weather information	f	-	-	7	5	31	36	-
		%	-	-	5.19	3.70	22.94	26.7	-
9.	Post- harvest practices	f	-	-	9	9	21	38	-
		%	-	-	6.66	6.66	15.56	28.15	-
10.	Live stock	f	-	-	12	27	41	-	-
		%	-	-	8.89	20	30.37	-	-
11.	Agriculture information (Crop protection, cultivation practices, irrigation practices and alternate crops etc.)	f	-	-	13	41	8	23	-
		%	-	-	9.63	30.37	5.92	17.04	-

Further the e-tools used for the purpose of "finding relevant information in the area of specialization" were 'Raitamitra' (29.62%), 'Information Kiosk' (11.85%), 'Whatsapp group' (6.67%), 'Krishi Marata Vahini' (5.92%), 'Agromet Advisory Services' (3.70) and 'Krishi Marata Vahini' (2.96%). Whatever information needed for their job is updated in these portals.

The e-tools used for "Professional development" were 'Raitamitra' (35.56%), 'Information Kiosk' (11.11%), 'Videoconferencing' (7.41%) and 'Whatsapp group' (4.44%). These portals and sites give information about schemes, weather forecasting details and policies which are important for their job. Results are closer to Hedjazi et al. [13].

The e-tools used for "Communication (exchange ideas)/ for sharing Information" were 'Whatsapp group' (37.78%), and 'Videoconferencing' (1.48%). It is greatly exploited for keeping in touch with friends, family, colleagues and other organizations. For job report or any other document individuals prefer internet, e-mail than post mail, as it is much not dangerous, quicker, cheaper.

The e-tool used for "Transfer of technology" was 'Whatsapp group' (65.92%). 'Whatsapp was most common means of communication. It is extremely utilized for keeping in touch with family, friends, colleagues, other organizations. For transference report or any other document individuals prefer the internet, e-mail than postal mail, as it is much safe, quicker, and cheaper.

The e-tools used for getting "Updates related market information" were 'Krishi Marata Vahini' (66.67%), and 'Whatsapp group' (5.93%). 'Krishi Marata Vahini' service provides regularly updated market prices information of various commodities at different markets. For the reason that it is the only app which provides service called 'Krishi Marata Vahini' web portal. This market information was helpful while transfer of technology.

The e-tools used for "Getting weather information" were 'Agromet Advisory Services' (26.70%), 'KMAS (22.94%), 'Whatsapp group' (5.19%) and 'Information Kiosk' (3.70%). All these e-tools were very useful means of getting weather information.

The e-tools used for "Post-harvest practices" were, 'Agromet Advisory Services' (28.15%), 'KMAS' (15.56%), 'Information Kiosk' (6.66%) and 'Whatsapp group' (6.66%). Web portals are mainly for distribution information related to farming and its allied discipline and also to get the solutions for various question especially asked by the farmers, to update their knowledge level

Further the e-tools used to get information about "livestock" were (37.04%), 'KMAS' (30.37%), 'Information Kiosk' (20.00%) and 'Whatsapp group' (8.89%). The application provides information on all kind of information related to maintenance and rearing of livestock daily in local language.

Further the e-tools used for "Agriculture information (Crop protection, cultivation practices, irrigation practices and alternate crops etc.)" were 'Information Kiosk' (30.37%), 'Agromet Advisory Services' (17.04%), 'Whatsapp group' (9.63%) and 'KMAS' (5.92%). The majority of the applications provide information on all kinds of practices related to agriculture. Findings are in line with Isiaka et al. [14].

It is crucial to make the extension personnel more e-literate so that they can use the advanced e- tools like apps, portals etc., to access the information at a faster rate and transfer the technologies at faster rate. It is possible by organizing training programmes on use of e-tools by the administration. The findings of the study indicated that low and medium utilisation level of extension personnel with respect to many e-tools considered in the study. So there is lot of scope to increase utilisation level of extension personnel with respect to e-tools by manipulating some of the profile characteristics viz, cosmopoliteness and Innovative proneness.

4. CONCLUSION

In the evolving landscape of agricultural extension services in India, e-tools play a crucial role in facilitating communication, knowledge dissemination, and collaboration among extension personnel. As such, it is essential to prioritize the education and training of these professionals to harness the full potential of e-tools in the field of agricultural extension. Through continuous research, hands-on experience, and structured training programs, extension personnel can be empowered to leverage e-tools effectively in their work,

ultimately benefiting the agricultural community they serve.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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