

**RESEARCH ARTICLE :**

Problems faced by agricultural extension functionaries in using information and communication technology tools

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SUMMARY : The present study was carried out in Mysuru, Hassan, Mandya and Tumakuru districts of Karnataka state during 2016-2017 to know the profile of agricultural extension functionaries and to identify the problems faced by the agricultural extension functionaries in using ICT tools. A sample of 80 Agricultural Officers (30 Nos) and Assistant Agricultural Officers (50 Nos) representing 43 Raitha Samparka Kendras of four sampled districts were interviewed with the help of a pre-tested interview schedule. The results revealed that majority of the extension functionaries were educated upto M.Sc. (Agri) degree (51.25%), had undergone training on ICT tools (60.00%) and were having medium level of e-readiness (51.25%). Majority of the agricultural extension functionaries had the problem of interrupted power supply, slow/ poor internet connection, poor maintenance of ICT tools, inadequate number of ICT tools (multimedia projectors, tablets with GPS, DVDs, digital cameras, etc.), lack of upgraded ICT tools/ equipment (hardware/software), high cost of ICT tools, technical and infrastructural problems, less number of Agri websites and portals, and problems of virus and junk mails. All the agricultural extension functionaries suggested for uninterrupted power supply for effective utilization of ICT tools, while a majority of agricultural extension functionaries suggested for allocation of sufficient funds for ICT infrastructure and procurement/ upgrading/ maintenance of ICT equipment and tools, provision of better internet connectivity etc., for effective utilization of ICT tools.

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BACKGROUND AND OBJECTIVES

Information and Communication Technology (ICT) tools are defined as the technologies involved in collection, processing, storing, retrieving, dissemination and implementation of data and information using microelectronics, optics, telecommunication

and computers. ICTs are very essential in agricultural extension for expanding the knowledge resource of extension functionaries, facilitating better information access, supplementing inadequate technical manpower and ensuring gender equity in technology transfer process and assisting in

developing efficient feedback mechanism.

The extension personnel of the Department of Agriculture across the country used to disseminate the agricultural technology to the farmers manually. This approach has not been able to meet the requirements of majority of farmers who are spread across the whole country. Today it is possible to find a solution to disseminate agricultural know-how to the whole country using the potential of ICTs to meet the location specific information needs of the farmers. The Karnataka Government initiated 'Raitha Mitra Yojane' during 2001 for providing effective extension services to the farmers. Raitha Samparka Kendras (RSKs) also known as Agricultural Extension Centers are established under Raitha Mitra Yojane at hobli or sub-block level to address a wide range of local issues related to agriculture. Agricultural extension functionaries (Agricultural Officers and Assistant Agricultural Officers) working at RSKs are using a wide variety of ICT tools for updating their knowledge and for dissemination of agricultural information to the farmer community, besides using it for training, communicating with other organizations and preparing letters/reports. They are often faced with difficulties in using and maintaining the ICT tools. Hence, the present study was undertaken with the following specific objectives:

- To know the personal, socio-economic, psychological and communication characteristics of agricultural extension functionaries
- To document the problems faced by the agricultural extension functionaries in using ICT tools
- To elicit the opinions of agricultural extension functionaries for effective utilization of ICT tools.

RESOURCES AND METHODS

The present study was undertaken in Mysuru, Hassan, Mandya and Tumakuru districts of Karnataka state during 2016-2017. Twenty one extension functionaries from Tumakuru district, 20 from Mysuru district, 22 from Mandya district and 17 from Hassan district provided the required information. The total sample constituted 80 Agricultural Officers (30 Nos) and Assistant Agricultural Officers (50 Nos) representing 43 Raitha Samparka Kendras of four sampled districts. Information on 14 personal, socio-economic, psychological and communication characteristics of agricultural extension functionaries were collected using

structured schedule with suitable scales. The collected data were analyzed using frequency, percentage and mean.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Personal, socio-economic, psychological and communication characteristics of agricultural extension functionaries :

Table 1 presents the data on the personal, socio-economic, psychological and communication characteristics of extension functionaries. The results in Table 1 reveal that a larger number (40.00%) of the extension functionaries belonged to middle age group, followed by 38.75 and 21.25 per cent of them belonging to old and young age groups, respectively. Majority (51.25%) of the extension functionaries had M.Sc. (Agri) degree, whereas 30.00 per cent of them had B.Sc. (Agri) degree, followed by 12.50 per cent having SSLC as their qualification and 6.25 per cent having PUC as educational qualification.

A greater proportion (43.75%) of the extension functionaries were from semi-urban areas followed by 28.75 per cent from urban areas and 27.50 per cent from rural areas. More number (41.25%) of the extension functionaries had more job experience followed by 36.25 and 22.50 per cent of them having moderate and less job experience, respectively. A little less than half (48.75%) of the extension functionaries belonged to medium level of achievement motivation category followed by 27.50 and 23.75 per cent belonging to high and low category of achievement motivation, respectively.

Table 1 also reveals that 42.50 per cent of the extension functionaries had medium level of innovative proneness, followed by 35.00 and 22.50 per cent of them having low and high level of innovative proneness, respectively. Forty five per cent of the extension functionaries had medium level of scientific orientation followed by 35.00 and 20.00 per cent of them having low and high level of scientific orientation, respectively.

With respect to the perceived work load, a greater number (38.75%) of the extension functionaries had medium level of perceived workload, whereas 31.25 and 30.00 per cent of them were having high and low level

of perceived work load, respectively. A little less than half (47.50%) of the respondents had medium level of job involvement, while 27.50 and 25.00 per cent of them

were having low and high job involvement, respectively. A larger number (42.50%) of the extension functionaries had medium level of accessibility to ICT tools, whereas

Table 1: Personal, socio-economic, psychological and communication characteristics of agricultural extension functionaries (n=80)

Sr. No.	Characteristics	Category	Agricultural extension functionaries	
			Number	Per cent
1.	Age	Young	17	21.25
		Middle	32	40.00
		Old	31	38.75
2.	Education	SSLC	10	12.50
		PUC	5	6.25
		B.Sc.(Agri)	24	30.00
		M.Sc.(Agri)	41	51.25
3.	Rural urban background	Rural areas	22	27.50
		Semi-urban areas	35	43.75
		Urban areas	23	28.75
4.	Job experience	Less	18	22.50
		Moderate	29	36.25
		More	33	41.25
5.	Achievement motivation	Low	19	23.75
		Medium	39	48.75
		High	22	27.50
6.	Innovative proneness	Low	28	35.00
		Medium	34	42.50
		High	18	22.50
7.	Scientific orientation	Low	28	35.00
		Medium	36	45.00
		High	16	20.00
8.	Perceived work load	Low	24	30.00
		Medium	31	38.75
		High	25	31.25
9.	Job involvement	Low	22	27.50
		Medium	38	47.50
		High	20	25.00
10.	Accessibility to ICT tools	Less	26	32.50
		Medium	34	42.50
		More	20	25.00
11.	e-readiness	Low	16	20.00
		Medium	41	51.25
		High	23	28.75
12.	Organizational climate	Low	18	22.50
		Medium	38	47.50
		High	24	30.00
13.	Training on ICT tools	Did not undergo training	32	40.00
		Underwent training	48	60.00
14.	Mass media utilization	Low	17	21.25
		Medium	35	43.75
		High	28	35.00

32.50 and 25.00 per cent of them were having less and more level of accessibility to ICT tools, respectively.

It is also observed in Table 1 that a little more than half (51.25%) of the extension functionaries had medium level of e-readiness, while 28.75 and 20.00 per cent of them were having high and low level of e-readiness, respectively. With respect to the organizational climate, as high as 47.50 per cent of the respondents had medium level of organizational climate followed by 30.00 and 22.50 per cent of them having high and low level of organizational climate, respectively. Forty per cent of the extension functionaries had not undergone training on ICT tools, whereas a majority (60.00%) of them had undergone training on ICT tools. As high as 43.75 per cent of the extension functionaries had medium level of mass media utilization followed by 35.00 and 21.25 per cent of them having high and low level of mass media utilization, respectively.

It can be summarized from Table 1 that a majority of the extension functionaries were educated upto M.Sc. (Agri) degree (51.25%), had undergone training on ICT tools (60.00%) and possessed medium level of e-readiness (51.25%). A larger number of extension functionaries were of middle age (40.00%) with more job experience (41.25%) and were from semi-urban areas (43.75%). A greater proportion of extension functionaries were having medium level of rural urban background (43.75%), achievement motivation (48.75%), innovative proneness (42.50%), scientific orientation (45.00%), perceived

workload (38.75%), level of job involvement (47.50%), accessibility to ICT tools (42.50%), organizational climate (47.50%) and mass media utilization (43.75%). It can be inferred that more number of extension functionaries had medium to high level of personal, socio-economic, psychological and communication characteristics. More or less similar findings were reported by Rai (2013), Kadam *et al.* (2014); Raksha *et al.* (2014) and Kabir (2015).

Problems faced by agricultural extension functionaries in using ICT tools :

Majority of the agricultural extension functionaries had the problem of interrupted power supply (87.50%), slow/ poor internet connection (75.00%), poor maintenance of ICT tools (73.75%), inadequate number of ICT tools (multimedia projectors, tablets with GPS, DVDs, digital cameras, etc.) (62.50 %), lack of upgraded ICT tools/ equipment (hardware/software) (61.25%), high cost of ICT tools (60.00%), technical and infrastructural problems (53.75 %), less number of Agri websites and portals (52.50%) and problems of virus and junk mails (51.25%) in using ICT tools (Table 2).

Less than half of the extension functionaries had the problem of lack of technically competent personnel in RSKs to use/ maintain ICT tools (47.50%), lack of training on ICT tools (40.00%), lack of need based farm programmes broadcasted/ telecasted in radio/ TV (25.00%), lack of time to use ICT tools (18.75%) and

Sr. No.	Problems*	Agricultural extension functionaries	
		Number	Per cent
1.	Interrupted power supply	70	87.50
2.	Internet connection is slow/ poor	60	75.00
3.	Poor maintenance of ICT tools	59	73.75
4.	Inadequate number of ICT tools (Laptops/Tablets/ DVDs/ Multimedia projectors etc.)	50	62.50
5.	Lack of upgraded ICT equipment and tools (hardware/software)	49	61.25
6.	High cost of ICT tools	48	60.00
7.	Technical and infrastructural problems while using ICTs	43	53.75
8.	Less number of Agri websites and portals	42	52.50
9.	Problems of viruses and junk mails	41	51.25
10.	Lack of technically competent personnel in RSKs to use/ maintain ICT tools	38	47.50
11.	Lack of training on ICT tools	32	40.00
12.	Lack of need based farm programmes broadcasted/ telecasted in radio/ TV	20	25.00
13.	Lack of time to use ICT tools	15	18.75
14.	Restrictions in use of ICT tools	10	12.50

*Multiple response

Table 3 : Suggestions for effective utilization of ICT tools as perceived by agricultural extension functionaries		(n=80)	
Sr. No.	Suggestions*	Agricultural extension functionaries	
		Number	Per cent
1.	Provision of uninterrupted power supply	80	100.00
2.	Allocation of sufficient funds for ICT infrastructure and procurement/ upgrading/ maintenance of ICT equipment and tools.	61	76.25
3.	Provision of better internet connectivity	60	75.00
4.	Conducting periodic and regular training programmes on use and maintenance of modern ICT tools.	58	72.50
5.	Setting up more number of Agri websites and portals	42	52.50
6.	Recruiting technically competent personnel for using/maintenance of ICT tools	38	47.50
7.	Broadcasting/telecasting need based farm programmes by Radio/ TV	20	25.00

*Multiple response

restrictions in use of ICT tools (12.50%) in using the ICT tools. Similar findings were reported by Agwu and Ogbonah (2015).

The policy makers and administrators should address the above problems helping the extension functionaries in effective utilization of ICT tools.

Suggestions for effective utilization of ICT tools as perceived by agricultural extension functionaries:

Table 3 reveals that all (100.00%) the extension functionaries suggested for uninterrupted power supply for effective utilization of ICT tools. A majority of extension functionaries suggested for allocation of sufficient funds for ICT infrastructure and procurement/ upgrading/ maintenance of ICT equipment and tools (76.25%), provision of better internet connectivity (75.00%), conducting periodic training programmes on use and maintenance of modern ICT tools (72.50%) and setting up more number of Agri-websites and portals (52.50%) for effective utilization of ICT tools.

It was also found in Table 3 that less than half of the extension functionaries suggested for recruiting technically competent personnel in using ICTs (47.50 %) and need based farm programmes to be broadcasted/ telecasted by Radio/ TV (25.00 %) for effective utilization of ICT tools (Table 3). Similar suggestions were reported by Hashemi *et al.* (2014) and Adeel Afzal *et al.* (2016).

The above suggestions put forth by the extension functionaries should be considered by the policy makers and administrators to overcome the problems faced by them for the effective utilization of ICT tools.

Conclusion :

Forty per cent of the extension functionaries have not undergone training on ICT tools. Hence, the

Karnataka State Department of Agriculture should arrange for conducting periodic training to the agricultural extension functionaries working in RSKs for increasing their knowledge and upgrading skill for effective utilization, and maintenance of ICT tools. Sufficient budget needs to be provided by the Karnataka State Department of Agriculture for RSKs to: (a) purchase more number of ICT tools (laptops, tablets with GPS, multimedia projectors, DVDs, etc.), (b) up-grade and maintain ICT tools/ equipment and (c) provide good infrastructure and required facilities for effective use of ICT tools by the extension functionaries. The government should arrange to provide continuous power supply through UPS/ Generator in the RSKs for effective utilization of ICTs by the agricultural extension functionaries.

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