



Assessment of e-Readiness of Extension Functionaries of Southern States of India in Agricultural Technology Dissemination

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ABSTRACT

Agricultural extension functionaries in India have an important role in dissemination of agricultural technologies to enhance the productivity of the farming community but to implement e-extension initiatives into effectual function, an extension officer must be e- ready to adopt new initiatives for quicker dissemination. A congenial eco - system for e-extension is need to be created for effective implementation of ICT enabled extension. The study investigated the preparedness of the extension professionals and extension organizations to implement ICT enabled extension services for farming community. In this study, e-readiness is defined in terms of awareness, knowledge, accessibility, perception and extent of utilization of ICT tools by extension personnel in agricultural extension system. The present study was conducted in five southern states of India to measure e-readiness of the public sector agricultural extension functionaries towards use of ICTs. A total number of 500 officers of agriculture and allied departments from Andhra Pradesh, Tamil Nadu, Karnataka, Kerala and Odisha were selected randomly for the study. The data was collected from development officers using structured Interview schedules, questionnaires and check lists. The findings of the study showed that more than 60 per cent of officers perceived moderately favourable attitude towards usage of ICT tools for dissemination of farm information.

Key Words: e-readiness, Information communication technologies (ICTs), Extension functionaries.

INTRODUCTION

The new paradigm of agricultural development is emerging at a faster pace, ICT applications never required more visionary leadership than now. Professionals of development departments and policy makers are the key persons in providing valuable inputs for designing a sound strategy. They can make a difference in developing the rural communities by designing effective strategies using modern initiatives such as ICTs. The extent of e-readiness of extension officers will also give a boost to the dissemination of agricultural information and technologies.

The overall development of rural areas in developing countries is taking new avenues of expansion. Conventional methods in terms of

delivery of important services to citizens are being challenged in both developing and developed countries.

ICTs can give a new shape to the social organizations and productive activities of agriculture which, if nurtured effectively, can become transformational factors. At the level of the nation as a society, the context is in the minds of its masses and its administrators - both political and those in the bureaucracy. Of course, their readiness is greatly influenced by the knowledge of what is possible with the technology (Raksha *et al*, 2015). While it has been amply demonstrated as to what is possible, and that there are no limits to what is possible with internet, its deployment would be limited only by other factors such as e-readiness

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climate - both physical and psychological. Hence, the present study was undertaken to assess e-readiness extension functionaries to assess the e-readiness extension functionaries of southern states of India in agricultural technology dissemination

MATERIALS AND METHODS

Ex-post facto and exploratory research design were followed for the study. The study was conducted in six southern states of India viz., Andhra Pradesh, Tamil Nadu, Karnataka, Kerala and Odisha. A total number of 500 officers, 100 from each state, working in the client departments of EEI were selected randomly for the study. The extension officers who attend the training programmes organized by Extension Education Institute during the years 2014 and 2015 were selected for the study. A pre-tested interview schedule was used to collect data from the respondents. e-Readiness was measured based on four parameters such as awareness, knowledge, perception and accessibility of ICTs in agricultural technology dissemination.

To measure the awareness of ICT tools an interview schedule was developed and the respondents were scored on Yes/No continuum. Total awareness score was further categorized into low, medium, high based on mean and standard deviation.

To measure the knowledge on ICT utilization 35 statements were selected regarding 10 ICT tools. These were presented to the respondents with 5 possible answers for each ICT tool. A score of one was given to the right answer and zero to the wrong answer. The possible obtainable scores ranged between 50 and 0. Based on the total score obtained by the respondents of each ICT tool, Knowledge Index was worked out by using the following formula.

To measure perception of the respondents towards ICT utilization a 5-point Likert type scale

ranging from 1 as 'strongly disagree' to 5 as 'strongly agree' used for the measurement. The respondents were asked to rate 10 statements based upon a five-point Likert type scale towards ICT utilization in agriculture. A perception score of a respondent was obtained by summing up the weights for his 10 statements regarding ICT utilization in agricultural extension. The perception score of a respondent could range from 10 to 50, while 10 indicating low perception and 50 indicating highest level of perception.

To measure the accessibility of ICT tools an interview schedule was developed and the respondents were scored on Yes/No continuum. The Total accessibility score was further categorized into low, medium, high based on Class interval range.

RESULTS AND DISCUSSION

Awareness on ICT tools

It was observed (Table 1) that out of the 10 ICT tools listed, extension officers indicated cent percent awareness on mobile telephony, television programmes (98.40%), Internet Kiosk (92.60%), Radio programmes (88.20%), Video recordings (75.20%), Web portals (60.20%), Kisan Call centres (55.40%), tele conferencing (33.40%), Video conferencing (17.60%) and mobile apps (3.60%). Majority of the officers aware of the usage of sending short message, through their mobile phones which are accessible in remote areas also. Similarly their usage of Television, Radio and video recordings is also good. Internet Kiosk is being extensively used more for personal reasons than extension work owing to the revolution of information technology but very less percent of the respondents were aware of the multimedia enabled interactive tools like audio video conferencing. These findings were in line with those of Pegu (2014) and Prodhan *et al* (2014). Mobile apps being a recent innovation very few officers were aware of it. Nevertheless, its potential as an effective channel is proven. Hence, the extension functionaries should

Assessment of e-Readiness

be aware of the recent tools be used for agricultural extension.

Table 1. Awareness of the extension officers on ICT tools. N=500

S. No	ICT tool	Frequency	%
1.	Mobile Telephony	500	100
2.	Internet kiosk	463	92.6
3.	Online web portals/ sites	301	60.2
4.	Kisan call centres	277	55.4
5.	Television programmes	492	98.4
6.	Radio programmes	441	88.2
7.	Video recordings	376	75.2
8.	Tele conferencing	167	33.40
9.	Video conferencing	88	17.6
10.	Mobile apps	18	3.6

The data (Table 2) indicate the overall awareness of Extension officers of southern India regarding the ICT tools and the results indicate that majority fell in the medium category (57.80%). There is an immense need for creating awareness on innovative ICT tools for creating awareness among extension officers to enhance its usage.

Rank order (Table 3) of the ICT tools regarding knowledge of the respondents based on Knowledge index

Sr. No	ICT tool	Knowledge index	Mean	Rank order
1.	Mobile Telephony	80	3.99	I
2.	Television programmes	72	3.50	II
3.	Television programmes	72	3.50	II
4.	Online web portals/ sites	62	3.10	III
5.	Radio programmes	58	2.88	IV
6.	Internet kiosk	51	2.54	V
7.	Kisan Call centres	49	2.44	VI
8.	Tele conferencing	36	1.79	VII
9.	Mobile apps	35	1.72	VIII
10.	Video conferencing	28	1.43	IX

workers are also utilizing the web medium to collect information, statistics, pictures, contacts etc., hence has ranked third. The prerequisite for incorporating ICTs in agricultural development is e-ready extension scientists. The e-ready extension

Table- 2 Distribution of the extension officers based on the extent of awareness. N=500

Category	Respondent	
	Frequency	Percentage
Low (< 4)	85	17.0
Medium (4-7)	289	57.8
High (>7)	126	25.2
Total	500	100

Knowledge levels of Extension officers about ICT tools

Based on the knowledge index scores the knowledge of extension workers was highest in case of mobile telephony (KI = 80) with mean score 3.99 because even in the remotest areas mobile extension was very fruitful and convenient to the extension functionaries, more so with the revolution of smart phones. This was followed by television programmes (KI = 72) with mean score 3.50 and web portals (KI = 62) with mean score 3.10. The findings were in congruence with that of Prodhon et al (2014) and Raksha et al (2015). The extension

functionaries can take care of wide range of information needs of the farmers. Extension agents should be able to access, afford and exercise the ICT tools and techniques. He / she should update with the necessary knowledge and skills to use appropriate ICT tools.

Perception of Extension officers about ICT tools

Table 4. Distribution of respondents based on overall perception score on ICT tools. N=500

Category	Respondents	
	Frequency	%
Unfavorable (10-23)	78	15.6
Moderate Favorable (24-37)	322	64.4
Favorable (38-50)	100	20.0
Total	500	100

Majority of the respondents had moderately favorable perception towards the use of ICTs in agricultural extension dissemination (64.4%) followed by Favorable perception (20.0%) and Unfavorable Perception (15.6%). The results indicating that majority of the respondents were aware of the advantages of ICTs in agricultural development though knowledge and usage is not satisfactory. This can bring a positive impact in future as they are willing to use ICTS in extension. Hence, there was a massive need for upgrading the digital literacy of the extension professional in southern India through various capacity building activities. Knowledge, skill and attitude of the extension functionaries are the three important domains which need to be considered for creating e-readiness among extension functionaries and organizations.

Accessibility of ICT tools to the Extension officers

The respondents were scored on a four point continuum of no accessibility, low accessibility, moderate accessibility and high accessibility with a score of 1,2,3 and 4, respectively. The respondents were asked to rate for each tool and all the scores were summed up to get the accessibility score of that respondent .The score range that could be obtained was from 10 to 40.Majority of the respondents had medium accessibility towards the use of ICTs in agricultural extension dissemination (55.6%) followed by low (24.6%) and high (19.8%).

Table 5. Distribution of respondents based on their accessibility to ICT tools. N=500

Category	Respondents	
	Frequency	Percentage
Low(10-17)	123	24.6
Medium(17-34)	278	55.6
High(34-51)	99	19.8
Total	500	100

The results indicating that majority of the respondents were accessing their mobile phone, Internet and Television as a medium in agricultural extension dissemination but had poor access to multimedia such as tele and video conferences. Their access to KIOSKS and Kisan call centres was not satisfactory. Even power and Internet speed were limiting factors in areas of access. Hence, there is a massive need for upgrading the available facilities for ICT usage of the extension professional in southern India through various capacity building activities like training.

CONCLUSION

The findings of the study revealed that the majority of extension officers were aware of most of the ICT tools except for multimedia tools. Among all the tools, the officers had greatest accessibility to mobile telephony as it was very accessible in remotest locations. Radio and television though accessible were not being widely used by them in the work front. It was also found that an overwhelming majority of officers had low to medium knowledge with regard to ICT utilization while majority had favorable perception. As training in ICTs showed a significant relationship with these two variables, the study recommends that regular training in the area will definitely increase the knowledge and perception of the officers and thereby increase their utilization in technology dissemination.

Assessment of e-Readiness

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