

RESEARCH NOTE

Constraints Faced in Mobile Based Agro-Advisory Services and Strategy for Enhancing the Effectiveness of mKRISHI®

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ABSTRACT

The farmer's exposure to risk and uncertainty is often provoked by lack of information about inputs, farm management practices or market prices and this lack of information has an adverse impact on crop production and income. The evidences suggested that a farmer who received quality, up-to-date information and who has the ability to use that information is able to lessen the effect of these risks. To minimize all types of risks of farmers, there are number of ICT initiatives working in the country. However escalating large number of ICT projects in country, are unable to fill the information gap. mKRISHI® system of disseminating messages in agriculture technology is an important extension methodology in this ICT era. Beside its wide adaptability among the farmers, it has few limitations to meet the information needs of all the farmers. Hence the present study was conducted in the Nasik and Kanchipuram districts of Maharashtra and Tamil Nadu respectively where mKRISHI® is working with the objective to analyze the various constraints in providing the extension services through the use of messages. A sample of 60 beneficiary farmers from both the districts was selected. An open-ended questionnaire was used to obtain the perception of the farmers about the constraints. Garrette ranking technique was used to rank the constraints. Later a structured schedule was also used to collect information related to the constraints. Friedman test was used to identify the most severe constraints. It was found that the most severe constraint in the functioning of mKRISHI® was Lack of update information followed by High cost for service provided, low IT literacy and low literacy.

Key words: Constraints; Mobile based agro-advisory; Garrette ranking technique;

Agriculture is the main occupation of farming community of India. Transfer of technology plays a major role in disseminating the research outcome to the farming community. In recent years, agriculture is facing severe challenge and coupled with limited man power of extension personnel due to which information need of farmers are not met. In this context, arrival of ICTs in agriculture is well time. The use of ICTs is more prevalent now a day in agriculture. ICT has reduced the costs of gathering, processing, and disseminating information that helps farmer mitigate risk. Applications of ICTs to transfer agricultural risk through instruments such as insurance and future contracts are still quite limited. The widespread use of these instruments seems to be hampered by low levels of institutional development, high costs, inability to customize products to meet smallholders' requirements, and poor financial literacy rather than by the information constraints that

ICTs can address. A lot of ICT initiatives are working in the country to meet the information needs of the farmer. Saravanan, (2010) observed that many ICTs were on pilot basis, operational at small scale, had difficulty in localization of the content and constrained with limited infrastructure. Gelb et al., (2005) in their study found that connectivity is the constraint for low use of ICTs especially among extension workers and farmers is the differing levels of consensus among these actors. Another constraint in the use of ICT in agriculture was the scattered nature of ICT initiatives which led to low adoption and usage of support tools developed for small-scale agriculture because extension services did not reach the targeted population on time (Munyua, 2007). Hence, in this study an attempt was made to delineate the constraints faced in mobile based agro-advisory services and suggest strategies for enhancing the effectiveness of mKRISHI®.

METHODOLOGY

The two districts namely Nasik of Maharashtra and Kanchipuram of Tamil Nadu were selected purposively for the study as mKRISHI® was started in these districts in 2006. Based on the available information on mKRISHI®, different constraints in dissemination of agricultural technologies through mKRISHI® were enlisted from farmers. The enlisted constraints were categorized into four categories, i.e. technological, social, economic and psychological. Responses to these constraints were recorded on a three point-continuum of most severe, severe and not severe. The perceptions of the farmers were obtained on these continuum and descriptive statistics were used to interpret the information available from the farmers. All the constraints were ranked by the respondents, then method of combining of incomplete order of merit ranking as suggested by *Garrett (1969)* was followed. The Friedman test was also used to identify the most severe constraints among the four constraints. Garrett ranking formula is

$$\text{Per cent position} = \left(\frac{R_{ij} - 0.5}{N_j} \right) \times 100$$

Where,

R_{ij} = rank given for i th factor by j th respondent

N_j = number of factors ranked by j th respondent

RESULTS AND DISCUSSION

Table 1 signified that the most severe constraint in effective functioning of mKRISHI® was lack of updated

information as perceived by farmers with Garrett's score 35.27. They felt that the information for the cropping system was not completely new due to which they could not properly manage their field resulting in reduced yield. High cost for service provided was second most important constraint with Garrett's score 31.94. The farmer perceived that cost received by mKRISHI® for their service provided was more as compared to their service delivered to farmers. Low IT literacy was listed as the third most severe constraint by the farmers with Garrett's score 31.38. They felt that they could better interpret the message if they had good knowledge of IT. They were able to understand the message because of the local coordinator who was available at that time explained the content. Low literacy among the farmers was considered as fourth important constraint with Garrett's score 30. They had argued that because of the poor knowledge level, they are unable to understand and remember the name of variety, chemicals, pesticide formulation etc. They perceived that better literacy could make them understand message better. Poor connectivity of network was ranked fifth.

An interview schedule was also used to collect the information related to the constraints faced by the farmers on a three point continuum. The constraints were divided in four major dimensions, i.e. technological, economic, social and psychological constraints. The results obtained are presented in Table 2. The mean score of each of the sub-dimensions was also calculated.

Table 2. Response of the farmers on extent of severity of different constraints (N=60)

Constraints	Responses of the farmers						Mean	Rank
	Most Severe		Severe		Not severe			
	No.	%	No.	%	No.	%		
<i>Technological Constraints</i>								
Poor connectivity of network	28	46.7	27	45.0	5	8.3	2.30	V
Lack of updated information	38	63.3	21	35.0	1	1.7	2.61	I
<i>Economic Constraints</i>								
High cost for service provided	0	0	13	21.7	47	78.3	2.41	II
High cost for establishment	0	0	0	0	60	100.0	1.56	VIII
<i>Social Constraints</i>								
Low literacy	18	30.0	10	16.7	32	53.3	2.38	III
Low IT literacy	7	11.7	43	71.7	10	16.7	2.33	IV
Lack of skill to use modern IT gadgets	0	0	30	50.0	30	50.0	1.95	VI
<i>Psychological Constraints</i>								
Lack of self confidence in handling mobile based information system	0	0	34	56.7	26	43.3	1.40	VII

Table 1. Constraints in Functioning of mKRISHI® as perceived by the farmers (N=60)

Constraints faced by Farmers	MGS*	Ranks
Lack of updated information	35.27	I
High cost for service providing	31.94	II
Low IT literacy	31.38	III
Low literacy	30.00	IV
Poor connectivity of network	29.32	V
Lack of skill to use modern IT gadgets	26.33	VI
Lack of self confidence in handling mobile based information system	23.00	VII
High cost for establishment	18.26	VIII

*Mean Garrett Score

Table 3. Test Statistics of Friedman test

Statistics	Value
N	60
Df	3
Asymp. Sig	.000

Table 4. Mean Rankby Friedman test

Constraints	Mean Ranks
Technological	3.94
Economic	2.73
Social	2.32
Psychological	1.72

In Table 2 the constraints were worked out by calculating the mean score for each of the sub dimensions. It also revealed the same result as obtained by the Garrett’s ranking technique.

To find out which constraint is most severe among the four dimensions, Friedman test was used. The results obtained by the use of this test are presented below.

Table 3 showed that asymptotic significance obtained from the Friedman test was 0.000 (<5). Hence it can be interpreted that there was significant difference in between the different constraints faced by the farmers while taking the services of mKRISHI®.

Table 4 further revealed that the mean ranks obtained by the use of Friedman test was highest for technological constraints (3.94) which means that it was most severe constraint among all the four constraints. This result was same as the result obtained from Table 1 and Table 2. The mean rank of psychological constraints was 1.72 which implied that it was the least severe constraints.

There are several advantages of mobile based ICTs tools in agriculture delivering the information needs of the farmers. It is not being utilized to its full potential. *Mittal and Tripathi, (2010)* found in their study that although it was evidenced that mobile phones were being used in ways which contributed to farm productivity, to leverage the full potential of greater access to information enabled by a mobile phone, particularly for small producers, will require significant improvements in the supporting infrastructure and also in capacity-building amongst farmers to enable them to use the information they access more effectively. *Heeks (2002)* found in their study that ICT based tool is under utilized in agriculture. Scaling up of delivery still remains at experimental stage. In this context, mKRISHI® is an excellent alternative for the transfer of information through the use of message. But some constraints made it unable to work at its full potential in technology disseminations to the farmers. The results obtained can be use to understand the major gap in the services of mKRISHI®. Most of the farmers perceived that the lack of updated information was main constraint in technology dissemination among the farmers. The low IT literacy and low literacy were the other major barriers in such type of ICT tool while disseminating information. The result are similar to the finding of *Vishwatej (2012)* who reported that lack of adequate skill to use ICT was a constraint in effective utilization of ICT based project by farmers. This result was similar to the finding of *Balakrishnan et. al (2012)* and *Afroz et. al (2013)*. Hence there is a need to develop some of the strategy to cope up such barriers in disseminations of technology. Some of the suggestions provided by the famers can be used to enhance the effectiveness of mKRISHI services for efficient transfer of information to farmers, thereby improving their prosperity and quality of life.

Strategies for enhancing the effectiveness of mKRISHI® : Based on the findings of the study and the suggestions of farmers and other stakeholders the following strategies should be used for enhancing the effectiveness of mKRISHI®.

1. Create awareness among farming community about the potential of mKRISHI®
2. Training must be given to extension officers as well as the officials in agricultural department and other line departments to promote mKRISHI®
3. Training may be provided to farmers about how to

utilize the information available in mobile

4. Regular updating of information
5. Location specific and problem specific information must be provided
6. There should be more linkage of mKRISHI® centre with State Agricultural University, Krishi Vigyan Kendra's, ICAR Institutes, State Department of Agriculture and other development departments
7. Experts should provide prompt reply to the queries and information asked by the farmers
8. Demonstrations with experts on farmer's field should be laid out to build rapport between mKRISHI® staff and farmers.

CONCLUSION

Realization of full potential of mobile based agro advisory is constrained by shortcoming in areas like technological, economic, social and psychological factor in agriculture. In spite of these few constraints mKRISHI® showed promising option for the dissemination of information among farmers and extension workers due to its unique technology adopted for dissemination of information. So it can be replicated in other parts of country also to disseminate the agricultural technologies and information to the vast numbers of small and marginal farmers in the country.

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REFERENCES

- Afroz and Singh (2013). Effectiveness of participatory video in dissemination of farm technology: A case of Digital Green. M.Sc Thesis, Division of Agricultural Extension, IARI, New Delhi-12.
- Balakrishnan, R. and Wason, M. (2012). Process and Determinants of E- Learning of Agricultural Technologies among Farmers of Kerala, M.Sc Thesis, Division of Agricultural Extension, IARI, New Delhi-12.
- Garrett, H. E. and Woodworth, R. S. (1969). Statistics in Psychology and Education. Vakils, Feffer and Simons Pvt. Ltd., Bombay. p 329.
- Gelb, E. and Offer, A. (2005). ICT Adoption in Agriculture: Perspectives of Technological Innovation. http://departments.agri.huji.ac.il/economics/gelb_main.html.
- Heeks (2002) Information Systems and Developing Countries: Failure, Success and Local Improvisations. The Information Society 18: 101–112.
- Mittal, S., Gandhi, S. and Tripathi, G. (2010). Socio-economic Impact of Mobile Phones on Indian Agriculture, Working Paper No. 246. Indian Council for Research on International Economic Relations. <http://www.icrier.org/pdf/WorkingPaper246.pdf>
- Munyua, H. (2007). ICTs and small-scale agriculture in Africa: a scoping study. Final Report to International Development Research Centre (IDRC)
- Saravanan, R. (2010). India- In ICTs for Agricultural Extension. Global Experiments, Innovations and Experiences. New Delhi: New India Publishing Agency.
- Vishwatej R. and J. Angadi, (2012). Utilisation Pattern of ICT Project by Farmer, Paper Presented at International Conference on Extension Educational Strategies for Sustainable Agricultural Development-A Global Perspective, Dec 5-8, 2013 UAS Bangalore, India.