

**RESEARCH ARTICLE :**

Application of agricultural information accessed through mobile

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SUMMARY : Mobile has emerged as the technology whose spread has surpassed all predictions and records. After its successful use in trade, commerce and banking, it is applied in governance and agricultural extension. A number of initiatives like Kisan Call Centre (Toll free number-18001801551), Mobile portal (<http://www.mkisan.gov.in>), Voice SMS (<http://www.iksl.net>) has been taken to provide mobile-based services to the farmers. All these initiatives aim at empowering the farmers through agricultural information which the farmers are expected to apply for increasing productivity and profitability. A study was conducted in Jharkhand state of India to ascertain the application of agricultural information accessed through mobile. Data were collected from the purposively selected districts, one each from three agro- climatic zones of Jharkhand on the criteria of mobile user base. The findings revealed satisfactory level of information application. The selected independent variables viz., family education, social participation, extension contact, mass media and IT exposure, attitude towards mobile, annual agricultural income, information needs, knowledge about mobile feature, level of aspiration about mobile and monthly expenditure on mobile service were found positively and significantly correlated with information application at 1 per cent level of probability. Age was found negatively and significantly correlated at 1 per cent level of probability. However, innovation proneness was found positively and significantly correlated at 5 per cent level of probability. The selected independent variables could explain the variability upto 41.6 per cent whereas the variable information needs alone contributed upto 34.6 per cent. Hence, intervention like awareness programme should be undertaken so that felt needs could be expressed and unmet needs could be converted into felt needs. Extension organizations need to provide more specific and personalized advice.

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BACKGROUND AND OBJECTIVES

The growth in number of mobiles has been beyond expectation and has surpassed the projected estimate (<http://www.iikt.ac.in>). There has been a long tradition of economic

research on the impact of mobile telephony on economic growth in developed economies (Hardy, 1980). The mobile services can facilitate transactions by connecting farmers with various buyers and traders (Bayes *et al.*, 1999). The upcoming decade is expected to

usher in information era through mobile value- added services (m-VAS).

Out of 927 million telephones 890 million subscribers have wireless devices which is 96.4 per cent. About 7300 mobile tower has been set up in the country making available mobile services to 99 per cent people. For promoting the use of ICT- enabled services Women Sanchar Shakti Yojna has been launched which facilitates women SHGs. The draft National Telecom Policy (2012) states that full potential of mobile phones will be harnessed for enabling provision of citizen-centric services related to education, health, employment, agriculture, entertainment, banking and insurance services. A number of initiatives like Kisan Call Centre (Toll free number-18001801551), mobile portal (<http://www.mkisan.gov.in>), voice SMS (<http://www.iksl.net>) has been taken to provide mobile-based services to the farmers aiming at enhancing agricultural productivity and profitability. However, the success of mobile-based information access depends upon application of agricultural information by the farmers. In this background, a study was conducted to know the application of agricultural information accessed through mobile.

RESOURCES AND METHODS

The study was conducted in Jharkhand state in ex-post facto research design. One district each from the three agro-climatic zones was purposively selected. One block each from the selected districts viz., Jama from Dumka, Lesliganj from Palamu and Patamda from East Singhbhum was selected on the criteria of agricultural development and number of mobile users. Thirty farmers from each block were selected randomly making the sample size of 90 respondents. Information application was measured through information application index (IAI) which was calculated by the following formula:

$$IAI = \frac{\text{Number of messages applied}}{\text{Number of message received}}$$

OBSERVATIONS AND ANALYSIS

Information application was calculated and its association was computed with selected independent variables. Multiple regression analysis was also worked out to know the contribution of selected variables.

Level of information application by the respondents:

The ultimate aim of agricultural extension is to get

the technology adopted by the farmers. In this context, it was thought prudent to explore whether the information delivered through mobile is applied by the farmers in their field. Therefore, information application index was calculated which is presented in Table 1.

Table 1 : Information application by the respondents

Sr. No.	Parameter	Value
1.	Number of messages accessed	295
2.	Number of messages actually applied in the field	204
3.	Information application index	0.69

On an average, the farmer accessed 295 messages in a year of which they applied 204 messages in the field. It could be inferred from the results that farmers have faith on mobile due to which they apply majority of the messages received.

Association of information application with the socio-personal and economic characteristics of respondents :

It is evident from Table 2 that the family education, social participation, extension contact, mass media and IT exposure, attitude towards mobile, annual agricultural income, information needs, knowledge about mobile feature, level of aspiration about mobile and monthly expenditure on mobile service were found positively and significantly correlated with information application at 1 per cent level of probability.

Table 2 : Correlation co-efficient of information application

Sr. No.	Independent variable	Information application
1.	Age	-.380**
2.	Family education	.415**
3.	Social participation	.511**
4.	Extension contact	.378**
5.	Mass media and IT exposure	.437* *
6.	Innovation proneness	.203*
7.	Attitudes towards mobile	.293**
8.	Annual agricultural income	.429**
9.	Information needs	.586**
10.	Knowledge about mobile feature	.334**
11.	Level of aspiration about mobile	.363**
12.	Monthly expenditure on mobile service	.326**

* and ** indicate significance of values at P=0.05 and 0.01, respectively level of probability

Age was found negatively and significantly correlated at 1 per cent level of probability. However, innovation proneness was found positively and significantly correlated at 5 per cent level of probability.

Information dissemination as wished by extension organization should culminate into information application. But information must be understood well before being applied. High level of family education is the favourable factor for information application. Family education helps in interpreting and understanding the information accessed through mobile and these accelerate application of information in field situation. Finding of Singh (1977) corroborates this finding. Social participation, extension contact and mass media and IT exposure help the farmers to understand and interpret the message. Moreover, these lend credibility to mobile as a source of information. Somasundaram (1976) reported that with an increase in contact with mass media there was corresponding increase in the adoption.

Favourable attitude towards mobile create psychological background for the application of information. High annual agricultural income favours information application. It also increases risk bearing

ability of the farmers which is required for adoption of innovation. Necessity is the mother of invention. High information needs will create urge to procure the information and apply it as a need satisfying behaviour. Knowledge about mobile feature has direct effect on information application. Similarly, level of aspiration about mobile effects information application, as high level of aspiration has a high level of necessity. High level of information application involves high level of information access which accrues expenditure on mobile services. Innovation proneness prompts farmers for information application. Age was found negatively associated information application.

Relative contribution of socio - personal and economic characteristics of respondents towards information application :

Relative contribution of socio - personal and economic variables towards variability in information application is presented in Table 3. It is indicated by the table that the selected 12 variables could explain the variability to the extent of 41.6% ($R^2=0.416$). The information needs contributed positively and significantly towards variability in information application.

Table 3 : Multiple linear regression analysis of the information application with independent variables

Sr. No.	Independent variable	Partial b value IKSL	S.E	Std. partial ' b' value
1.	Age	-.002	.002	-.087
2.	Family education	-.001	.003	-.028
3.	Social participation	.018	.015	.167
4.	Extension contact	.005	.003	.157
5.	Mass media and IT exposure	.002	.004	.063
6.	Innovation proneness	.000	.021	.001
7.	Attitude towards mobile	.002	.002	.078
8.	Annual agricultural income	.000	.001	.015
9.	Information needs	.006	.003	.385*
10.	Knowledge about mobile feature	-.003	.012	-.026
11.	Level of aspiration about mobile	.012	.011	.118
12.	Monthly expenditure on mobile service	-.001	.001	-.206

$R^2=0.416$ Adj $R^2=0.325$

* and ** indicate significance of values at $P=0.05$ and 0.01 , respectively level of probability

Table 4 : Regression model of information application

Sr. No.	Variable	R^2 Value	Method
1.	All independent variable	0.416	Enter
2.	Level of aspiration about mobile and Information needs	0.346	Backward
3.	Information needs	0.344	Forward

Regression model of information application :

Regression model of information application was computed by enter, backward, and forward methods. Enter method takes all the variables into account, which could explain the variability upto 41.6 per cent (Table 4). In model 2, which has been calculated by backward method, two variables *i.e.* level of aspiration about mobile and information needs explained the variability upto 34.6 per cent. In model 3, which has been calculated by forward method, only one variable *i.e.* level of information needs explained the variability towards information application upto 34.4 per cent. The contribution of information needs towards information application could be well understood. Here, intervention like awareness could be undertaken so that felt needs could be expressed and unfelt needs could be converted into felt needs. Extension organizations should provide more specific and personalized advisory services. Hardy (1980) had also worked on the role of the telephone in economic development

Conclusion :

Mobile has been getting popular with the farmers. Level of information application accessed through mobile was found satisfactory. Information needs has emerged as the most important variable towards variability in information application. As an extension strategy, it should be ensured that only relevant information matching with information needs of the farmers is disseminated. At the same time, efforts

should be made to convert unfelt needs into felt needs.

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