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Comparison of the socio-personal and communication characteristics of the smartphone using farmers of Jaipur district

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Abstract
In recent years, Smartphone's have emerged as a pivotal tool for ICT, witnessing significant growth in our country. Agricultural productivity has been greatly influenced by the role of information and communication. Farmers require information across various stages of agricultural activities, such as sowing, harvesting, animal care, and more. The government of India has initiated several programs to support the agriculture sector through mass media, including radios, televisions, prints, and mobile applications. This study was conducted in Jaipur district, Rajasthan, with two blocks, Govindgarh and Bassi, selected as they represented the highest and lowest produce arrivals in the market. From these blocks, four villages each were randomly chosen, totaling eight villages for the study. In these villages, 10 farmers from each were selected randomly, resulting in a sample of 80 farmers. Most Smartphone-using farmers in Govindgarh and Bassi blocks were adults with secondary-level education and low annual income (less than Rs. 238,333). They belonged to the other backward caste category and were primarily engaged in agriculture. These farmers had significant land holdings, regularly used Kisan Mela, had limited personal cosmopolitan contacts, preferred input dealers as their primary localite information source, had substantial localite contacts, regularly used TV as a mass media source, had low mass media exposure, considered Smartphone's more valuable than other information sources, and exhibited medium levels of innovativeness."

Keywords: Smartphone, information communication technology, communication pattern

Introduction
In India, agriculture dominated by small and marginal farmers whose education is weak and the majority of is often unable to access information that could increase yield for their crop. The government has a vast research and development infrastructure in the form of institutions such as the Indian Council of Agricultural Research (ICAR), State Agricultural Universities and Krishi Vigyan Kendra's (KVKs) and other institutes, but today these institutions are facing many constraints in mobility of technical staffs for transfer of technological information at the village level.

Here comes the role of ICT's, which are robust and productive with new ideas, methods of the technology dissemination and further improving the knowledge and information among there society by providing new opportunities for development in all sectors. The term ICTs used to include electronic and print media such as radio, television, telephone, computer, internet, mobile phones. There is no doubt that by using communication technologies, rural people have improved their agricultural productivity. With effective use of communication technologies farmers can increase their productivity and income. In the perspective of the mobile phones, farmers can directly communicate with buyers and customers for selling their produce at a reasonable price, and remote areas are facing many problems in use of technologies due to lack of infrastructure and awareness among farming community where the use of the traditional method was still in practice. Mobile phone technologies have provided an excellent platform for farmers to share their knowledge and information among each other in time such as market rates and weather information in developing countries (Munyua and Lehr, 2007) [9].

Mobile communications technology has quickly become the world's most common way of transmitting voice, data, and services in the developing world. Given this dramatic change, mobile applications (m-apps) in general and mobile applications for Agricultural and Rural Development (m-ARD apps) in particular hold significant potential for advancing

development. They could provide the most affordable ways for millions of people to access information, markets, finance, and governance systems previously unavailable to them.

The statistic shows the number of mobile phone users in India from 2013 to 2019. For 2018 the number of mobile phone users in India is expected to rise to 730.7 million. In this same year, the number of smartphone users in India is predicted to reach 340 million and could reach almost 468 million by 2021. (Annonymous 2018) [1].

In light of the above, the Government of India has taken several steps to come up with different media platforms through which farmers could access information including radios, televisions, prints, and person to person communication. For instance, Waverman *et al*. (2006) [11] have highlighted the shortcomings of traditional methods of providing information to rural farmers and or rural community who are generally illiterate and relatively remote from formal sources of information like extension stations, radios, televisions, prints and libraries. Some of these shortcomings included: irrelevance of the delivered data, inadequate coverage, lack of avenues to improve performance, failure to ensure accountability, and lack of focus on location-specific needs of regions, disadvantaged areas and target group requirements

Materials and Methods

The study was conducted in the two blocks Govindgarh and Bassi in Jaipur district of Rajasthan. Out of 33 districts, Jaipur district of Rajasthan was selected due to the following reasons-, Jaipur district is having the highest number of cultivators (7,44,374) among all the districts in Rajasthan state, due to which it is expected that more number of smartphones is used by the farmers in this district as compared to other districts. (Source-The Directorate of Economics and Statistics, Rajasthan (2016) and Census of India (2011). The Directorate of Agriculture is located in Jaipur, which monitors different schemes related to technology transfer to the farmers through smartphones. The headquarter of Kisan Call Center is located in Jaipur district, which is often used by the farmers to get the information related to agriculture. Jaipur District comes under the jurisdiction of Sri Karan Narendra Agriculture University, Jobner and the Directorate of Extension Education of this university is providing the information to the farmers through the mobile calling and messaging bu using smartphones. Jaipur district comprises of thirteen blocks *viz*. Amber, Bassi, Chaksu, Dudu, Govindgarh [Chomu], Jamwaramgarh, Jhotwara, Kotputli, Phagi, Sambhar, and Sanganer. Out of these Govindgarh and Bassi blocks were selected due to having the highest and lowest value of produce arrival in the market simultaneously. In this way, one developed and one underdeveloped blocks were selected from the population for study purpose. (Source-Department of Agricultural Marketing, Government of Rajasthan). According to administration record the block Govindgarh comprises 115 villages, and a total population of 3,95,009 on the other hand Bassi have 205 villages with a total population of 2,83,594.

From the selected blocks separate lists of villages having more than 100 farmers were prepared, and four villages from each block were selected randomly. In this way, a total of 8 villages will be selected for the study purpose. From the selected villages, separate lists of farmers using Smartphone will be prepared. Out of which 10 farmers from each of the selected village will be selected randomly. In this way, a total sample of 80 farmers will be selected for the study purpose. The research design adopted for the present study was exploratory research design. Exploratory research seeks what is rather than predicts relations to be found.

Results and Discussion

Table 1: Distribution of Smartphone using farmers according to their socio-personal and communication characteristics

(n=80)

Particulars	Categories	Blocks		Total
		Govindgarh	Bassi	
		Frequency with Percentage	Frequency with Percentage	Frequency with Percentage
Age				
	Young (18 to 35 years)	6 (15.00)	5 (12.50)	11 (13.75)
	Adult (36 to 55 years)	28 (70.00)	25 (62.50)	53 (66.25)
	Old (more than 55 years)	6 (15.00)	10 (25.00)	16 (20.00)
Education				
	Illiterate	3 (7.50)	3 (7.50)	6 (7.50)
	Primary	2 (5.00)	1 (2.50)	3 (3.75)
	Middle	8 (20.00)	13 (32.50)	21 (26.25)
	Secondary	11 (27.50)	13 (32.50)	24 (30.00)
	Senior secondary	10 (25.00)	6 (15.00)	16 (20.00)
	Graduate	6 (15.00)	3 (7.50)	9 (11.25)
	Post Graduate	0 (0.00)	1 (2.50)	1 (1.25)
Income				
	Low (<238333)	16	31	47

		(40.00)	(77.50)	(58.75)
	Medium (from 238333-476666)	16 (40.00)	7 (17.50)	23 (28.75)
	High (>476666)	8 (20.00)	2 (5.00)	10 (12.50)
Caste				
	General caste	5 (12.50)	5 (12.50)	10 (12.50)
	Other backward caste	30 (75.00)	23 (57.50)	53 (66.25)
	Schedule tribe	3 (7.50)	11 (27.50)	14 (17.50)
	Schedule caste	2 (5.00)	1 (2.50)	3 (3.75)
Landholding				
	Marginal (Less than 1 ha	8 (20.00)	18 (45.00)	26 (32.50)
	Small (from 1 to 2 ha)	12 (30.00)	10 (25.00)	22 (27.50)
	Large (More than 2 ha)	20 (50.00)	12 (32.00)	32 (40.00)
Occupation				
	Labour	1 (2.50)	1 (2.50)	2 (2.50)
	Caste occupation	1 (2.50)	2 (5.00)	3 (3.75)
	Agriculture	28 (70.00)	31 (77.50)	59 (73.75)
	Business	8 (20.00)	5 (12.50)	13 (16.25)
	Service	2 (5.00)	1 (2.50)	3 (3.75)
Personal cosmopolite contact				
	Low	32 (80.00)	36 (90.00)	68 (85.00)
	Medium	7 (17.50)	4 (10.00)	11 (13.75)
	High	1 (2.50)	0 (0.00)	1 (1.25)
Personal localities contact				
	Low	0 (0.00)	0 (0.00)	0 (0.00)
	Medium	15 (37.50)	11 (27.50)	26 (32.50)
	High	25 (62.50)	29 (72.50)	54 (67.50)
Mass media exposure				
	Low	25 (62.50)	28 (70.00)	53 (66.25)
	Medium	15 (37.50)	12 (30.00)	17 (21.25)
	High	0 (0.00)	0 (0.00)	0 (0.00)
Innovativeness				
	Low	9 (22.50)	9 (22.50)	18 (22.50)
	Medium	29 (72.50)	31 (77.50)	60 (75.00)
	High	2 (5.00)	0 (0.00)	2 (2.50)

Age

A close observation of data in Table indicates that majority of 70.00 percent and 62.50 percent farmers of Govindgarh and Bassi Block respectively were from 'adult' age group. The data presented in Table further indicate that majority of smartphone using farmers (66.25%) also belonged to the adult age group (from 36 to 55 years), The findings are somewhat similar to the findings of Gopatwad (2015) [7].

Education level

The data in table indicated that majority of smartphone using farmers of Govindgarh Block (27.50%) and Bassi Block (32.50%) were having a secondary level of education, whereas 25.00 percent in Govindgarh and 32.50 in Bassi farmers having an education level of senior secondary and middle respectively. It is further evident from the data in table 4.1.2 that 30.00 percent farmers were reported in the

educational group of Secondary education,
Generally, the villages having the educational facility up to primary and secondary level and for getting higher studies one has to go to the city which requires more money. Due to this reason, the education of people is restricted. This indicates that the large proportion of the respondent had their education up to secondary school level. The present results are in line with the results of Ansari and Pandey (2013) [3].

Income level
To classify the Smartphone using farmers based on their annual income, three categories were formulated by using the arbitrary method, i.e., less than Rs 238333 per annum, from Rs 238333 to 476666 and above Rs 476666 per annum**.** It is evident from the table that majority of 58.75 percent of the total Smartphone using farmers were from the low-income group. The data accommodated in table 4.1.3 indicate that majority of 40.00 percent, and 77.50 percent farmers of Govindgarh and Bassi Block respectively were belonged to low-income status. i.e under Rs. 238333/- per annum.
An in-depth observation to data indicates that Smartphone using farmers of Govindgarh Block are enjoying comparatively better economic status than smartphone using farmer of Bassi block. This may be due to the better-earning avenues and more favorable conditions, including irrigation facilities available in the Govindgarh than Bassi block. The attributable reason might be that, the majority of a smartphone using farmers had large land holdings despite that lack of irrigation facilities is a big problem for low production, so they belonged to low annual income group category. The present results are in line with the findings of Fahad and Mehmood (2017) [6].

Caste Category
The data in Table reveals that majority of Smartphone using farmers 66.25 percent belonged to Other Backward Caste (OBC. The data further shows that the Govindgarh block has the majority of farmers 75.00 percent belonged to other backward caste On the other hand, Bassi Block also had a majority of farmer 57.50 percent from other backward class.

Size of landholding
An observation of the data in table shows that majority of 40.00 percent Smartphone using farmers belonged to large landholding. A perusal of data in table further shows that majority of 50.00 percent of the Smartphone using farmer of Govindgarh Block had large landholding whereas the majority of 45.00 percent of farmer of Bassi Block had marginal landholding it can be concluded that the majority of farmers (60.00%) possessed marginal and small landholding in the study sample.
This may be due to continuous breaking down of families and division of land among the family members in the rural areas that the majority of Smartphone using farmer fell in the marginal and small landholding category. The results are in line with the findings of Ansari and Pandey (2013) [3].

Occupation
On the basis of the data in table it can be concluded that the majority of the smartphone using farmers 73.75 percent has engaged in agriculture as the main occupation, The data in table 4.1.6 further revealed that majority of smartphone using farmers of Govindgarh (70.00 per cent) and Bassi (77.50 per cent) Block also having occupation of agriculture respectively, The result was in line with the findings of Ansari and Pandey (2013) [3].

Extension agency contact
Personal cosmopolite contact
The data presented in Table indicated that majority of a smartphone using farmers (85.00%) were having low personal cosmopolite contacts, further that majority of smartphone using farmers of both Govindgarh (80.00%) and Bassi (90.00%) were having low personal cosmopolite contacts, the probable reason might be that, farmers having a lack of higher level of education and thus they lack the interest to participate in the organizations. And the most probable reason might be that farmers were always engaged in the farming operation and got little leisure time to participate in different social organizations.

Personal localities contact
The data presented in Table indicated that the majority of a smartphone using farmers (67.50%) were having high personal localite contacts, whereas 32.50% smartphone using farmers were having medium personal localite contacts. None of the farmers had low personal localite contacts. The data in table further indicated that majority of a smartphone using farmers of both Govindgarh (62.50%) and Bassi (72.50%) were having high personal localite contacts.

Mass media exposure
The data presented in Table indicated that the majority of a smartphone using farmers (66.25%) were having low mass media exposure, the data in table 4.1.8.2 further indicated that majority of a smartphone using farmers of both Govindgarh (62.50%) and Bassi (70.00%) were having low mass media exposure.

Innovativeness
The data presented in Table indicated that majority of a smartphone using farmers (75.00%) were having medium innovativeness, whereas 22.50% smartphone using farmers were having low innovativeness and rest 2.50% had high innovativeness. The data in table 4.1.9.2 further indicated that majority of smartphone using farmers of both Govindgarh (72.50%) and Bassi (77.50%) were having medium innovativeness, the plausible reason might be that the farmers with higher education were able to update their knowledge and skills time to time and ready to accept the new technologies in their farming. And as the majority of the smartphone using farmers had education up to the secondary level, they had medium innovativeness. These findings are in line with Sidram (2008) [10].

Conclusion
The predisposition of behaviour towards positive utilization of ICT tools can usher a new era of information depended technological intervention in agriculture. The present study reflected the attitude of farmers towards utilizing ICT tools and identified the influence of socio-personal attributes on attitude. The family education status and economic affluence of the family enhance the positive attitude of the farmer in case of utilising the ICT tools in a better way. The managerial efficacy and the appropriate use of communication sources are also two important indicators for developing positive attitude towards ICT tools use in an effective manner. So, it is to infer that for future policy implication related to

development of positive attitude of farmers towards appropriate use of ICT tools should technically and critically consider the perspectives like higher economic status, high level of managerial efficacy, high level of education and high level of efficiency for appropriate utilization of information and communication technology sources.

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