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Constraints in using mobile phone as an information source in vegetable development: A case of D. G. Khan, Pakistan

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Abstract

Mobile phone play an important role in agricultural productivity this role cannot be underestimated. Mobile phone can improve, enlarge and contribute in the sharing of agricultural information efficiently on various aspects such as: weather reports, help in decision making about the farming such as which crop to grow at a particular time of the season, time of the plantation, the crop, agrochemical need and usage and the time of harvesting. The needs for the information are increases rapidly with the introduction of modern technology, changes in climate and hybrid seeds. So, the farming community felt that their knowledge that they already possess, existing experience and guess work of making decisions for daily basis activities are not effective in these changing condition and circumstances. One hundred and twenty vegetable growers were selected by using random sampling technique. Two tehsils from district Dera Ghazi Khan were selected through random sampling technique, then four union councils from each tehsil and three villages from each union council, were also be selected at random. Five farmers from each village were selected to make a total 120 respondents for the study. The study shows that most (65.0%) of the respondents used smart phone and they used from five to ten years. The results indicate that an overwhelming majority (80.8-83.3%) of the respondents were of the view that weak finances and reluctance to adopt mobile technology were appeared to be the main constraint in adopting mobile phone as an information source for obtaining information regarding cultural practices, plant protection and market related information.

Keywords: Constraints, Dera Ghazi Khan, Information source, Mobile phone, Vegetable development

Introduction

Mobile phone play an important role in agricultural productivity this role cannot be underestimated. Mobile phone can improve, enlarge and contribute in the sharing of agricultural information efficiently on various aspects such as: weather reports, help in decision making about the farming such as which crop to grow at a particular time of the season, time of the plantation, the crop, agrochemical need and usage and the time of harvesting. The farmer can obtain knowledge/information about the newly discovered research on the agricultural practices, soil preparation and plantation, methods of irrigation, methods of weeding, cultivation, harvesting the crops and post harvesting techniques likewise storage and marketing by using mobile phone through text short message services (SMS) or even through direct calls without the need for travelling to the far areas markets and the location where agricultural experts are located. By this the farmers can improve their agricultural productivity (Falola and Adewumi, 2012).

Mobile phone can help the farmers in decision making about the selling price and market of their products, and it can reduce the cost of farmers that they spend in the search of big/attractive market (Abraham, 2007). With the usage of mobile phone perishability, theft, accident, frustration among the farmers and transportation cost can be reduced by this farmers can obtain their service for any supplies such as herbicides seeds of improved varieties, fertilizers and pesticides etc on time at their door step by simply using SMS to producers and suppliers.

This technology (mobile phone) enabled the farmer to create link and interact with the stakeholders and reduce the social isolation. Gough and Grezo (2005) revealed that the ICT technologies especially mobile phone open the new opportunities for the business and allow the farmers to contact friends and relatives. All these above points relate the mobile telecommunication services with agricultural operations.

After the era of green revolution it is a great challenge for the government and policy makers to regain the dynamism in agricultural sector. Rise in the food prices and rapid growing of population are major dilemmas in present conditions, due to this there is a strike in balance between policies about food security and policies to improve the income of farming community (Mittal and Mehar, 2012). The world development report 2008 (World Bank, 2007) highlighted that agricultural extension plays a significant role in development of agricultural products and promoting sustainability, inclusive and pro-poor economic development. The access of the ICT tools especially mobile phone put a tremendous positive impact on the development that is sustainable and reduction in poverty (Torero and Braun, 2006).

The needs for the information are increases rapidly with the introduction of modern technology, changes in climate and hybrid seeds. So, the farming community felt that their knowledge that they already possess, existing experience and guess work of making decisions for daily basis activities are not effective in these changing condition and circumstances. The cost of information delivery through face-to-face interaction is very high, information to market is poor so, these factor has make the way for the usage of information & communication technology (ICT) such as mobile phone in the dissemination of information regarding agriculture to the targeted persons (Mittal and Mahar 2012).

Usage of mobile phone technology is fastest-growing innovation in the sector of agriculture especially for the dissemination of information in the rural areas (Asongu and Nwachukwu, 2016). Tadesse and Shively, (2013) discussed that typically farmers of the vegetable in Cameroon sell their products and materials to traders either in villages or in markets. This process of searching buyers that buy in good prices the cost of information searching is high. The markets of villages have asymmetric information because traders and intermediary have more information about the prices in markets of region and central markets.

Mittal, Gandhi, and Tripathi (2010) conducted research about the mobile phone usage in which they interviewed fisherman and farmers of India and revealed that information which is obtained through mobile phone enable the farming community in increasing their yield. Nobody have doubt about the role of information in market efficiency and benefit of behavior. Getting the right knowledge and information about the market rate and other functionalities of markets at a right time is important for agricultural products especially for the perishable, balky and seasonal produces of the farmers (Anoop, Aijan and Ashok, 2015).

Aker (2011) discussed that mobile phone technology can promote development through inspiring new opportunities of business and increase the efficiency through exchange of knowledge and rapid access. The spread of mobile phone is high that enabled the farming community to overcome barriers of physical distance and improve access to knowledge and services.

Donovan (2011) discussed in his study that mobile phone assist farming community in identifying buyers and market person for their produces on larger geographic areas and at vital moments, by reducing price risk and increasing the benefits of this technology. Mobile phone can provides other more services to farming community. In the past few years, mobile phones operators developed a various applications and services. The most projected service among these services is mobile money transfer, by this system money can transferred to various users via a mobile phone.

On the basis of above discussion, it is clear that the farming community of world gain benefits by using mobile phone technology. They enhanced their productivity and annual agricultural income with the help of this technology. In this context, Pakistani farming community also obtain knowledge and information about various information just like farming practices, post-harvest practices, markets information and enhance their productivity and annual agricultural income. So, in present study we discussed the problems and constraints faced by farming community of Pakistan. This will help in understanding the problem of farming community for using ICTs specially mobile phone and policy makers in policy formation for the farming community about ICTs.

Methodology

The study's approaches that used during the research are essential parts of our documentation by that methods study be judged. The method section should give enough information to readers that they can repeat the experiments (Springer, 2019).

Study Area

This study was conducted in rural area of Pakistan. Pakistan is a country located in South Asia/subcontinent coordinates 30°00'N 70°00'E, it borders India in west, Afghanistan to northwest, Iran to west and China in northeast (Burki and Ziring, 2019). It is second largest country of south Asia having 796,096 KM^2 piece of land (Burki and Ziring, 2019). The country has four provinces, one being Punjab in which study was conducted. The province has ten divisions: Rawalpindi, Bahawalpur, Multan, Sargodha, Gujranwala, Lahore, Sahiwal, Sheikhupura, Faisalabad and Dera Ghazi Khan. This study was conducted in Dera Ghazi Khan district of Dera Ghazi Khan division.

Data Collection

One hundred and twenty vegetable growers were selected by using random sampling technique. Two tehsils from district Dera Ghazi Khan were selected through random sampling technique, then four union councils from each tehsil and three villages from each union council, were also be selected at random. Five farmers from each village were selected to make a total 120 respondents for the study.

Interview schedule were used in this study for collection of data from respondents. Interview schedule was consist of 3 sections moreover, three point Likert scale was used by the researcher i.e., "1= Agree, 2= Undecided, 3= Disagree" for assessing the agreement level of respondents about the constraints that they faced in using mobile phone as an information tool. The collected primary data was verified, coded and analyzed using Statistical Package for Social Sciences (SPSS) version 22.0. Descriptive analysis were performed for the means, percentages and frequencies.

Results and Discussion

Type of Mobile Phone

The respondents were asked about the type of mobile phone that they used. The responses of the respondents are presented in **Table 1**.

Table 1: Type of mobile phone

Types	F	%	Valid %	Cumulative %
Smart phone	78	65.0	65.0	65.0
Analog phone	42	35.0	35.0	100.0
Total	**120**	**100.0**	**100.0**	

(*Field Survey 2019)

Most (65.0%) of the respondents had a smart phone for usage whereas, remaining one-third (35.0%) of the respondents had analog phone.

Time being using of Mobile Phone

Usage of mobile phone was considered an important variable in this study. Keeping in view the importance of this variable respondents were asked about this and the responses of respondents are presented in **Table 2**.

Table 2: Usage of Mobile phone

Time (Years)	F	%	Valid %	Cumulative %
Less than 5	39	32.5	32.5	32.5
5-10	77	64.2	64.2	96.7
More than 10	04	03.3	03.3	100.0
Total	**120**	**100.0**	**100.0**	

(*Field Survey 2019)

Fair majority (64.2%) of the respondents reported that they used mobile phone since 5-10 years whereas, a small (03.3%) number of respondents were using mobile phone for more than 10 years. The results further indicate that the slightly less than one-third (32.5%) respondents using mobile since last 5 years.

Usage of mobile easy or not

The respondents were asked whether usage of mobile phone is easy or difficult for them and the responses of the respondents are presented in **Table 3**.

Table 3: Usage of mobile easy or not

Response	F	%	Valid %	Cumulative %
Yes	81	67.5	67.5	67.5
No	39	32.5	32.5	100.0
Total	**120**	**100.0**	**100.0**	

(*Field Survey 2019)

Fair majority (67.5%) of the respondents responded that the usage of mobile phone was easy for them whereas, remaining (32.5%) were of the view that using smart phone was difficult to them.

Constraints faced by respondents

The respondents were asked about the constraints in using mobile phone for the development of vegetable some constraints were mentioned and the responses of the respondents are mentioned in **Table 4**.

Table 4: Constraints in using mobile phone

Constraints	Yes		No	
	F	%	F	%
Weak finances	100	83.3	20	16.7
Little awareness of mobile phone	86	71.7	34	28.3
Reluctance in adopting mobile technology	97	80.8	23	19.2
Out dated information	84	70.0	36	30.0
Weak linkage with agriculture research institute	93	77.5	27	22.5
Not in local language	86	71.7	34	28.3
No guidance	89	74.2	31	25.8
Reluctance to quit traditional practices	85	70.8	35	29.2

(*Field Survey 2019)

The results indicate that an overwhelming majority (80.8-83.3%) of the respondents were of the view that weak finances and reluctance to adopt mobile technology were appeared to be the main constraint in adopting mobile phone as an information source for obtaining information regarding cultural practices, plant protection and market related information.

The results further depicts that majority (70.0-77.5%) of the respondents reported that out dated information, little awareness of mobile phone, the information not in local language, no guidance, reluctance to quit traditional practices and weak linkage with agricultural research institute were the main constraints in adopting mobile phone as an information tool.

Level of agreement with the constraints

The respondent were asked about the level of agreement with the constraint. The responses of the respondents are shown in **Table 5**. One-third (35.8-39.2%) of the respondents reported that they were agreed with this out dated information, little awareness of mobile phone, no guidance about usage and reluctance to adopt mobile technology was a constraints for them. Whereas, one-fifth to one-fourth (17.5-28.3%) of the respondents disclosed that reluctance in adopting mobile technology, no guidance about usage and out dated information were not a constraints for using mobile phone as an information source. The results further show that near about one-third (35.8-36.7%) of the respondents remain unclear about the out dated information and no guidance about usage, were constraints for using mobile phone as an information source or not.

Table 5: Agreement level of the respondents about constraints

Constraints	**Agree**		**Undecided**		**Disagree**	
	F	**%**	**F**	**%**	**F**	**%**
Weak finances	59	49.2	40	33.3	21	17.5
Little awareness of mobile phone	43	35.8	44	36.7	33	27.5
Reluctance in adopting mobile technology	47	39.2	52	43.3	21	17.5
Out dated information	43	35.8	43	35.8	34	28.3
Weak linkage with agriculture research institute	52	43.3	37	30.8	31	25.8
Not in local language	51	42.5	36	30.0	33	27.5
No guidance	46	38.3	44	36.7	30	25.0
Reluctance to quit traditional practices	53	44.2	38	31.7	29	24.2

(*Field Survey 2019)

The results revealed that near about half (44.2-49.2%) of the respondents were agreed that reluctance to quit traditional practices, weak linkage with agricultural research institutes and weak finances were constraints for adopting mobile phone as an information source. Whereas, one-fifth to one-fourth (17.5-27.5%) of the respondents showed their disagreement that weak finances, weak linkage with agricultural research institutes and information was not in native language were the constraints for using mobile phone as an information source. The results further indicate that one-third (33.3%) of the respondents were remained unclear about weak finances was constraints for using mobile phone as an information toll.

Disturbance Faced by the Respondents in Using Mobile Network

The respondents were asked about the disturbance in network. Whether they face disturbance in network usage or not. The respondents gave responses about that and the responses are presented in **Table 6**.

Table 6: Disturbance faced by respondent (n=120)

Response	**F**	**%**	**Valid %**	**Cumulative %**
Yes	78	65.0	65.0	65.0
No	42	35.0	35.0	100.0
Total	**120**	**100.0**	**100.0**	

(*Field Survey 2019)

The results indicate that fair majority (65.0%) of the respondents were reported that they faced disturbances in using their networks. whereas, slightly more than one-third (35.0%) of the respondents did not faced any disturbance in using their networks.

Ranking of Various Problems as Perceived by the Respondents Regarding Network

The respondents were asked to rank the problems that they faced in using networks. About two-third (65.0%) of the respondents were respond. The responses of the respondent are presented in **Table 7.**

Table 7: Ranking of various problem as perceived by the respondents (n=120)

Problems	**1st**	**2nd**	**3rd**	**4th**	**5th**
Signal of network	38 (48.7)*	28 (35.6)	9 (11.5)	2 (2.5)	1 (1.2)
Balance	1 (1.2)	12 (15.3)	26 (33.3)	10 (12.8)	29 (37.1)
High rates	25 (32.0)	30 (38.4)	16 (20.5)	5 (6.4)	2 (2.5)
Range	8 (10.2)	4 (5.1)	24 (30.7)	17 (21.7)	25 (35.8)
Low internet	6 (7.6)	3 (3.8)	3 (3.8)	45 (57.2)	21 (26.9)

*Figures in parenthesis are percentages.(*Field Survey 2019)

The data depicts that about one-third (35.6%) to most (48.7%) of the respondents identified signal of network as 1st and 2nd problem in getting information through mobile phone. Whereas high rates were identified as 1stand 2ndproblem in receiving information by 32.0% and 38.4% of the respondents respectively.

The data further indicate that about one-third (33.3%) to most (37.1%) of the respondents identified balance as 3rd and 5th problems in getting information through mobile phone.

Furthermore, slightly less than one third (30.7%) to slightly more than one third (35.8%) of the respondents were identified that range of network as 3rd and 5th problems for obtaining information through mobile phone.

Moreover, the results further indicate that more than half (57.2%) to about one-fourth (26.9%) of the respondents identified low internet speed as 4th and 5th problems in obtaining information through mobile phone.

Conclusion and Recommendations

Conclusion

It is concluded that most of the respondents used smart phone since five to ten years and they responses that usage of mobile phone is easy for them. It is concluded that an overwhelming majority of the respondents reported that weak finances and reluctance to adopting mobile phone were main constraints in using mobile phone as an information tool. Half were agree with the statement that reluctance to quit traditional practices and weak linkage with agricultural research institutes are constraints in using mobile phone. Furthermore, it is concluded that majority of the people faced disturbances in using this network. They face disturbance of signal and high rates of the network.

Recommendations

On the basis of above study we recommend that:

- The telecommunication companies should improve their internet services and signal strength.
- For tackling the constraints about the usage of mobile, Department of Agriculture (Ext. wing) should take some initiatives to train the vegetable growers.
- Telecommunication agencies should reduce the prices of their services bout internet and call because majority of the rural people are poor.

Contribution

Syed Mufeed Hadi Naqvi - Collected the Data and Proceed the work
Badar Naseem Siddiqui - Supervised overall work

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