

Interpersonal Communication and Adoption of Farm Practices in Agriculture: A Survey of South Punjab, Pakistan

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Abstract

*Agriculture sector of Pakistan is in dire need to adopt latest farm practices for enhancement of agricultural productivity. Pakistani farmers utilized interpersonal communication in many shapes such as, mutual discussion with friends, fellow farmers, vendors/change agents, extension workers for seeking agricultural information. In order to achieve the required adoption of farm practices, policy makers have to make policies for effective communication. This study generally finds the statistical relationship between information obtained via interpersonal communication using social contacts and adoption of farm practices by the farmers. Finding of study showed the significant relationship of $>.235^{**}$ with the $p=.000$ between usage of interpersonal communication and obtained agricultural information and also significant relationship at the level $>.589^{**}$ with the $p=.000$ between agricultural information sought through interpersonal communication and adoption of recommended practices in agriculture sector of Pakistan. However, mean score of the usage of interpersonal communication is at medium level which also varies according to different types of interpersonal communication.*

Keywords: *Interpersonal Communication, Farmers, Agricultural Information, South Punjab, Adoption of Farm Practices.*

Introduction

Farmers' community obtains relevant information through different communication tools. Agriculture extension department also use communication channel to disseminate the useful agriculture related information. Agricultural information may be in different ways for example, information about soil and its cultivation for selected crops, recommended seeds of crops, appropriate usage of fertilizers, economical utilization of pesticides and weedicides. Mass media alongwith interpersonal communication plays an imperative role to convey information to the farmers regarding agricultural innovations. Larger portion of respondents used conventional sources of media. According to them, communication sources for agriculture related information were available. Agriculture extension department use communication channel to disseminate the useful agriculture related information. Agricultural information may be in different ways for example, information about soil and its cultivation for selected crops, recommended seeds of crops, appropriate usage of fertilizers, economical utilization of pesticides and weedicides. According to Das, D. (2012) farmers preferred interpersonal communication followed by other mass media. Communication source like interpersonal is more effective particularly face to face interaction. Mass media plays an imperative role to convey information amongst farmers regarding agricultural innovations. A

larger portion of respondents in area under research used conventional sources of media. According to them, communication sources for agriculture related information were available. A higher portion of respondents declared that the information provided by the radio was useful to solve their agricultural problems. (Memon, Panhwar, Chandio, Bhutto, & Khooharo, 2014) Interpersonal communication has major role in agricultural activities particularly farmers are provoked through face to face discussion. Change agents of agricultural market play significant role for dissemination of agricultural information amongst the farmers to adopt innovations in agriculture (Khan & Akhtar, 2019).

Punjab dominates in the agriculture sectors of the country (Government of Pakistan, 2018) Wheat, cotton, rice, sugarcane, and maize are the main crops of Punjab. Other crops include millet, corn, oilseeds, pulses, vegetables, and fruits such as orange etc. Farmers of the Punjab also use Hindu calendar for planting and harvesting but since few years there is practice to use English calendar for this purpose. Punjab Province contributes a larger amount of food grain the country annually which is circulated to the other parts of Pakistan and the remaining balance production is preserved for future. Cotton, wheat, sugarcane, rice and maize are considered as cash crops that contribute to the national foreign reserves; this increase in the agricultural production is just because of using new inventions and ideas in agriculture. To adopt innovation in agriculture sector in order to make it a profitable, the communication channels are playing an important role particularly the interpersonal communication has great importance. The area under research is south Punjab region of Punjab Province, Pakistan. Besides other business, agriculture is a major source of income for the people of Khanewal district because of its fertile land which is producing a large amount of cotton, wheat, maize, rice, sugar cane and other cash crops; whereas, main fruits of South Punjab are, mango, Orange, Mellon, Water Mellon and Date etc. The main vegetables of the region are potato, onion, carrot, radish, lady finger and cauliflower etc. Most of its rural areas have no approach to the cable network. Though, during current era communication system of the society has changed and mass media including ICT are essential necessities of society, however, in agriculture extension interpersonal communication is still playing an important role therefore, it is much important to know about using frequency of interpersonal communication, therefore, the objectives of the study are to measure frequency of interpersonal communication used by the farmers of South Punjab. For successful communication there is a need to explore relationship between usage of interpersonal communication by the farmers and level of obtained agricultural information via interpersonal communication study finds out the relationship between usage of interpersonal communication and agricultural information obtained by the farmers. The success of communication is measured by the adoption of innovation, in agriculture sector the latest recommended farm practices are innovations and study also identifies relationship between the agricultural information obtained through interpersonal communication and adoption of farm practices by the farmers.

Literature Review

Purushothaman, C., Kavaskar, M., Reddy, Y. A. and Kanagasabapathi, K. (2003) argued though, radio and television have been acclaimed as the most influential source of seeking agricultural information, amongst farmers, however, farmers largely depend on social network such as "*Baithak System*" in rural areas, interpersonal communication includes peer groups, agriculture extension workers, opinion leaders and change agents, some of these have a great importance in persuading and adopting agricultural innovations. Hall, K., and Rhoades, E. (2010) stated that "mass media including interpersonal communication influence individual's attitude international studies have shown interpersonal interactions influenced the farmers' decisions to accept or reject organic farming". Agriculture departments in addition to mass media channels use interpersonal communication channel for diffusion of different innovations, such as the introduction of certain technology. However, different media contribute in a different way for diffusion the innovations and their adoption among. Agriculture departments in addition to mass media channels use interpersonal communication for diffusion of different innovations, such as the introduction of certain technology. Ali, S., Jan, M. & Anwar, M. (2011) found out that close friends having some relevant experience play a role of opinion leaders and are influential in decision making process of the society. Similarly, farmers were inspired by these individuals for adoption of innovations in order to increase agricultural yields. Das, D.

(2012) investigated that much of the information reached the farmers through the interpersonal or formal sources. The officials of government agriculture extension department can directly make contact with farmers for spreading helpful information about agricultural innovations. Cheboi, S. and Mberia, H. (2014) found out the efficacy of interpersonal communication tool for diffusion and adoption of zero grazing innovation. Whereas, some demographic characteristics are also influential in the decision making process of farmers regarding some relevant innovations. Ali, S., Jan, M. & Anwar, M. (2011) also concluded that the income and education of the farmers play an important role in adoption of agricultural innovations. Chachhar, et al. (2012) investigated that the most efficient and reachable include channel, other farmer and vendors of agricultural products whereas the agriculture officer during field days' and farmers training programs. Chen, T.L.Y. & Yang, L. (2000) concluded that interpersonal communication was utilized to seek information about various types of innovations. Okwu, O.J and Daudu, S. (2011) found that interpersonal communication were generally more accessible to the respondents in the shape of extension agents and other farmers on regularly basis for agricultural information whereas, opinion leaders was also available on regular basis for seeking agricultural information. Farmers used variety of communication tools for obtaining information regarding farm practices and adoption, however, respondents opted three most important sources o agricultural information i.e Office of Agriculture, fellow farmers and family members and the Office of Agriculture (Egge, Tongdeelert, Rangsipah, & Tudsri, 2011). Interpersonal communication plays an important role in educating farmers' and spreading the agricultural information for adoption of hybrid seed corn in Pakistan. However, farmers use various communication tools according to their socioeconomic position, education level of farmers has significant positive relationship with the usage of different communication tools for agriculture (Masood, A., Akhter, P. and Sulman, M., 2018).

Research Questions

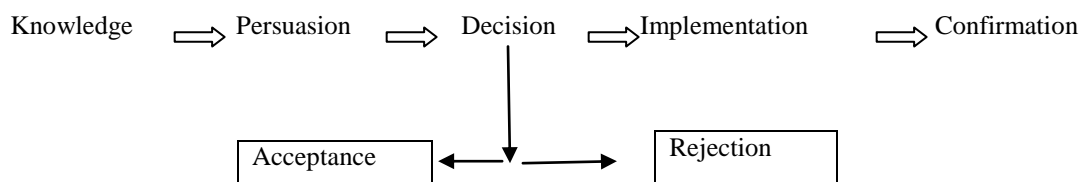
1. To what extent do farmers use interpersonal communication and obtain agricultural information?
2. What is the level of relationship between agricultural information obtained through interpersonal communication and adoption of farm practices by the farmers?

Hypothesis

- H⁰** There is no relationship between usage of interpersonal communication and agricultural information obtained through interpersonal communication by the farmers.
- H-1** There is relationship between agricultural information obtained via interpersonal communication and adoption of farm practices.

Diffusion of Innovation Theory

Diffusion is the procedure by which an innovation is communicated through certain channels over time amongst the members of a society. It is a special form of communication in that the messages are concerned with new ideas (Rogers, 1995, p. 5). In this study, diffusion of innovation refers to the adoption of farm practices in agriculture. Those expected to decide whether to adopt or reject the suggested farm practices are farmers of South region of Punjab Province, Pakistan.



Method and Materials

This research belongs to post positivist research philosophy due to its quantitative nature and hypotheses testing. This is a survey based quantitative research which aims to identify the role of inter personal communication in spreading information regarding farm practices in agriculture sector of Pakistan. Farmers of South region of Punjab Province, Pakistan are population of this study. However, due to lack of resources and non availability of sampling frame, purposive sampling technique was used for selection of respondent with pre-defined criteria i.e age of respondents, experience of agriculture, farm size and grower of major crops. Two hundred and fifty six (256) farmers of three districts of south Punjab region i.e (i) Khanewal, (ii) Muzaffar Garh, and (iii) Bahawalpur, with pre-defined criterion were contacted for data collection during April, 2020 to June, 2020.

In order to collect relevant data structured questionnaire alongwith a demographic information sheet will be adopted according to indigenous interpretation. Questionnaire contains five (05) point likert type scales and each scale contains 12 items. Researcher personally contacted the targeted respondents with the help of local field workers of private marketing companies. The Cronbach's Alpha reliability was determined through pre-testing of questionnaire which was $\alpha=.90$ and then final data has been collected, whereas, the validity of the questionnaire was determined in consultation with agriculturists and communication experts. Descriptive and inferential analyses will be carried out by SPSS version 23.

Findings

Table 1: Descriptive Statistics and Reliability Coefficients for Study Variables

Scales	α	K	M	SD	Range	
					Potential	Actual
Agricultural Information via Interpersonal Communication	.92	12	45.72	7.02	12-60	24-60
Adoption of Farm Practices in Agriculture	.90	12	47.69	6.60	12-60	35-60

Note: α = reliability coefficient, k= no. of items in scale and subscale

Table 2: Descriptive of Demographic Variables

Variables	M	SD	f	%
Home District of Respondent				
Khanewal			90	35.2%
Muzaffar Garh			76	29.7%
Bahawalpur			90	35.2%
Education Level of Respondents				
1-5			32	12.5%
6-8			65	25.34%
9-10			101	39.5%
11-12			30	11.7%
13-14			15	05.9%
15-16			13	05.1%
Income Level of Respondent (In PKRs)				
000000-100000			14	05.5%
101000-200000			59	23.0%
201000-300000			44	17.2%
301000-400000			28	10.9%
401000-500000			36	14.1%

501000 and Above			75	29.3%
Age Group of Respondents				
30-40 Years	--	--	150	58.6%
41-50	--	--	82	32.0%
51-60	--	--	21	08.2%
61-70	--	--	03	01.2%
Farming Experience				
05-15 years			177	69.2%
16-25			69	27.0%
26-35			08	03.1%
36 and above			02	00.8%
Farmers Status				
Owner			93	35.9%
Tenant			25	09.8%
Owner cum Tenant			137	53.5%
Partnership			02	00.8%
Land Farms Size				
05-15 Acres			202	78.9%
16-25			27	10.5%
26-35			11	04.3%
36-45			08	03.1%
46- and above			08	03.1%
Types of Crops during last Season				
Wheat			160	62.5%
Rice			14	05.5%
Maize			16	06.3%
Wheat & Rice			30	11.7%
Wheat & Maize			34	13.3%
Rice & Maize			02	00.8%
All Three			00	00.0%
Discussion with Agricultural Extension Worker				
No				
Rarely			08	03.1%
Medium			51	19.9%
Often			95	37.1%
Most Often			78	30.5%
			24	09.4%
Discussion with Agricultural Vendor				
No			08	03.1%
Rarely			59	23.0%
Medium			104	40.6%
Often			74	28.9%
Most Often			11	04.3%
Consultation with Family Members				
No			06	02.3%
Rarely			84	32.8%
Medium			112	43.8%
Often			51	19.9%
Most Often			03	01.2%
Consultation with Fellow Farmers				
No			03	01.2%
Rarely			61	23.8%
Medium			105	41.0%

Often	83	32.4%
Most Often	04	01.6%
Consultation with Local Expert Farmer		
No	16	06.3%
Rarely	84	25.0%
Medium	107	41.8%
Often	64	25.0%
Most Often	05	02.0%

Table 3: Area wise Mean Score of the Usage of Interpersonal Communication by the Farmers

Area of Respondents	No. of Respondents	Mean	Range	Std. Deviation
Khanewal	90	15.42	5-25	2.557
Muzaffar Garrh	76	16.24	5-25	2.343
Bahawlpur	90	13.98	5-25	2.764

Table 4: Area wise Mean Score of Agricultural Information Obtained via Interpersonal Communication

Disrict	Number of Respdents	Mean	Range	Std. Deviation
Khanewal	90	44.91	12-60	8.845
Muzaffar Garrh	76	43.09	12-60	3.964
Bahawlpur	90	48.74	12-60	5.795

Table 5: Area wise Mean Sore Adoption of Farm Pracices by the Farmers

Disrict	Number of Respdents	Mean	Range	Std. Deviation
Khanewal	90	48.69	12-60	7.168
Muzaffar Garrh	76	42.47	12-60	3.686
Bahawlpur	90	51.09	12-60	5.105

Table 6: Age wise Mean Score of the Usage of Interpersonal Communication Farmers

Age Groupof Respondent	Number of Respdents	Mean	Range	Std. Deviation
30-40 Years	150	15.08	5-25	2.721
41-50	82	15.29	5-25	2.632
51-60	21	14.86	5-25	3.151
61-70	3	17.33	5-25	2.517

Table 7: Age Wise Mean Score of Agricultural Information Obtained via Interpersonal Communication

Age Groupof Respondent	Number of Respdents	Mean	Range	Std. Deviation
30-40 Years	150	45.89	12-60	7.187
41-50	82	45.18	12-60	6.724
51-60	21	45.86	12-60	6.858
61-70	3	51.00	12-60	7.937

Table 8: Age Wise Mean Score for Adoption of Farm Practices

Age Groupof Respondent	Number of Respdents	Mean	Range	Std. Deviation
30-40 Years	150	47.93	12-60	6.907
41-50	82	47.39	12-60	6.220
51-60	21	47.19	12-60	6.447
61-70	3	47.00	12-60	2.646

Table 9: Education Level and Mean Score of the Usage of Interpersonal Communication by the Farmers

Eduaction Level of Respondent	Number of Respondents	Mean	Range	Std. Deviation
Primary	32	14.88	5-25	2.587
Middle	65	14.51	5-25	2.948
Matric	101	15.41	5-25	2.743
Intermediate	30	15.63	5-25	2.470
Graduation (14 years)	15	15.40	5-25	2.324
Masters (16) years	13	15.77	5-25	2.522

Table 10: Education Level and Mean Score Agricultural Information Obtained via Interpersonal Communication

Eduaction Level of Respondent	Number of Respondents	Mean	Range	Std. Deviation
Primary	32	47.69	12-60	5.562
Middle	65	45.28	12-60	6.296
Matric	101	45.62	12-60	7.403
Intermediate	30	44.57	12-60	7.745
Graduation (14 years)	15	45.93	12-60	7.516
Masters (16) years	13	46.23	12-60	8.418

Table 11: Education Level and Mean for Adoption of Farm Practices

Eduaction Level of Respondent	Number of Respondents	Mean	Range	Std. Deviation
Primary	32	47.31	12-60	5.750
Middle	65	47.48	12-60	6.876
Matric	101	47.27	12-60	6.641
Intermediate	30	47.50	12-60	6.290
Graduation (14 years)	15	50.67	12-60	6.935
Masters (16) years	13	49.92	12-60	7.088

Table 12: Farmers' Status and Mean Score of Usage of Interpersonal Communication

Farmers' Status	Number of Respondents	Mean	Range	Std. Deviation
Owner of Land	91	14.80	5-25	2.814
Land on Rent	25	16.44	5-25	2.123
Onership & Rental	137	15.19	5-25	2.686
Tenant	3	13.67	5-25	4.041

Table 13: Farmers' Status and Mean Score of Agricultural Information Obtained via Interpersonal Communication.

Farmers' Status	Number of Respdents	Mean	Range	Std. Deviation
Owner of Land	91	44.56	12-60	7.788
Land on Rent	25	46.60	12-60	8.981
Onership & Rental	137	46.28	12-60	6.029
Tenant	3	48.00	12-60	.000

Table 14: Farmers' Status and Mean for Adoption of Farm Practices

Farmers' Status	Number of Respdents	Mean	Range	Std. Deviation
Owner of Land	91	47.82	12-60	6.968
Land on Rent	25	47.72	12-60	6.889
Onership & Rental	137	47.50	12-60	6.351
Tenant	3	51.67	12-60	5.508

Table 15: Relationship between Variables

Variables	Usage of Interpersonal Communication	Agriculture Information via Interpersonal Communication	Adoption of Farm Practices in Agriculture
Usage of Interpersonal Communication	--	.235** p=.001	--
Agriculture Information via Interpersonal Communication	.235** p=.001	--	.589** p=.000
Adoption of Farm Practices in Agriculture	--	.589** p=.000	--

Note: *p< .05; **p< .01; ***p< .001

Discussion

Descriptive of Demographic variables showed that up to 95% respondents were involved in interpersonal communication through various sources for example, contact with extension workers, vendors/private agents, fellow farmers, local expert/opinion leaders and family members, however, percentage for using each source varies at different level.

Interpersonal communication is most often used tool of communication for seeking and sharing experience about anything. Mass media including interpersonal communication influence individuals to accept or reject organic farming (Hall & Rhoades, 2010). Five (05) source of interpersonal communication were included to know about usage of interpersonal communication for agricultural information, discussion with Agriculture Extension Worker, discussion with vendor selling agricultural commodities, and discussion with fellow farmers, family members and local expert farmers. Data about discussion with extension workers reveals that 3.1% respondents marked as “No”, 19.9% marked “Rarely”, 37.1% marked “Medium”, 30.5% have marker as “Often” whereas, 9.4% marked as “Most Often”. According data about frequency of discussion with vendor showed that 3.1% respondents marked as “No”, 59% marked “Rarely”, 40.6% marked “Medium”, 28.9% have marker as “Often” whereas, 4.3% marked as “Most Often”. While measuring the frequency of discussion with fellow farmers to know about agriculture it is revealed that 1.2% respondents marked as “No”, 23.8% marked “Rarely”, 41% marked “Medium”, 32.4% have marker as “Often” whereas, only 1.6% one marked as “Most Often”. Data about contact with local expert farmers showed that 1.2% 6.3% respondents marked as “No”, 25% marked “Rarely”, 41.8% marked “Medium”, 25% have marker as “Often” whereas, only 2% one marked as “Most Often”.

Pakistani farmers utilized interpersonal communication in many shapes such as, friends, neighboring farmers, change agents, extension workers for seeking agricultural information. However there is significant relationship at the level $>.235^{**}$ with the $p=.000$ between usage of interpersonal communication and obtained agricultural information, whereas, significant relationship at the level $>.589^{**}$ with the $p=.000$ was found between agricultural information sought through interpersonal communication and adoption of recommended practices in agriculture sector of Pakistan. Hence, the null hypotheses “there is no relationship between usage of interpersonal communication and agricultural information obtained through interpersonal communication by the farmers of south Punjab” is rejected with the as p value is $=.000$ and there is significant relationship between agricultural information sought through interpersonal communication and adoption of farm practices in agriculture sector of Pakistan. Findings are also in lined with those of Cheboi, S. and Mberia, H. (2014) who found out the efficacy of interpersonal communication tool for diffusion and adoption of zero grazing innovation. Whereas, some demographic characteristics are also influential in the decision making process of farmers regarding some relevant innovations. Gathecha et al (2014) identified that the neighboring farmers are most common and recommended source of diffusion of innovations amongst the farmers. Interpersonal communication is most often used tool of communication for seeking and sharing experience about anything. Mass media including interpersonal communication

influence individuals to accept or reject organic farming (Hall & Rhoades, 2010). communication and agricultural information obtained via interpersonal communication. Hanif (1992); Iqbal (1993); Nazim (2000); Irfan (2005); and Irfan *et al.* (2006) found that friends farmers was major information sources for agricultural information combined with printed sales/dealer materials, fact sheets, newsletters, magazine articles, bulletins, and farm organizations

Conclusions

Mass media including interpersonal communication laying role in the progress of agriculture sector of Pakistan. It is concluded that the different types of communication have different role in dissemination of agricultural information and diffusion of innovations amongst farmers. Though, the interpersonal communication is mostly used by the farmers as a source of agricultural information but it is less effective towards adoption of recommended practices in agriculture. Findings also revealed that there is significant relationship of $>.589^{**}$ between agricultural information obtained through interpersonal communication and adoption of farm practices in agriculture by the farmers of area under research. However, mean score of the usage of interpersonal communication is at medium level which also varies according to different types of interpersonal communication. Findings have implications for policy makers of extension department while making policies for agriculture extension and usage of extension resources.

Limitations

Due to lack of financial resources and traveling difficulties during COVID-19 Pandemic, study was limited to southern region of Punjab province instead of whole province. Study was limited to five different sources of interpersonal communication whereas, due to non availability of sampling frame, purposive sampling technique was used to collect relevant data from the respondents. Therefore, study can not be generalized over whole population of the region.

Recommendations

- The agriculture extension department should consider the impact of interpersonal communication on adoption of farm practices in agriculture sector of country. While appointing extension workers, Agriculture department should appoint trained and qualified representatives according to their expertise in different crops of the area.
- For capacity building of the field staff/extension workers the experience sharing programs should be arranged time by time in collaboration with agriculture research institutes. Number of field activities such as field visit, farmers' meeting and informative seminars should be increased.
- The farmers should be made realized the benefits of new and recommended farm practices.

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