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INTERPERSONAL COMMUNICATION AND DIFFUSION OF INNOVATION IN AGRICULTURE SECTOR OF PAKISTAN

Masrur Alam Khan
Pervaiz Akhtar

Abstract

Development communication has distinct theoretical roots and differing emphasis in terms of programme designs and goals. Such goals are achieved through diffusion process of an innovative idea using certain communication channels over times among the members of a particular social system. The contribution achieved/made by innovations and new technologies to economic growth and welfare is largely determined by the rate and manner by which innovation diffuse throughout the relevant population. The literature on the diffusion of rural innovations in Third World countries reveals a range of approaches to the diffusion process. This study examines interpersonal influence during the diffusion of agricultural innovation in one of the rural districts of the country, Pakistan. A survey technique was followed through self administered questionnaire. Findings revealed that interpersonal communication has major role in agricultural activities particularly farmers are motivated through face to face discussion. Change agents of agricultural market play significant task of dissemination agriculture information amongst the farmers to adopt new innovations.

Pakistan is an agricultural country in South Asia and the sixth most populous country with a population exceeding 200 million and with an area covering 796,095 KM. Agriculture of Pakistan is very important sector of the country which supports the economy of Pakistan, a large number of its population in different ways depends on agriculture sector; it contributes a large amount to Gross Domestic Product (GDP). Agriculture is providing lots of labor opportunities to the citizen of country; agriculture is also a largest source of foreign exchange earnings. The agriculture sector of Pakistan is providing food facility to the both rural and urban areas. Management of agriculture sector has always been eager to make policies for betterment of agricultural sector of the state in order to increase production (yield rate). People mainly need for increased production of important crops such as wheat, cotton, rice, sugarcane, maize etc. In order to learn about the new ideas and inventions in the agriculture valuable information is very essential through different medium of communication particularly, the interpersonal communication besides of mass media plays very vital role. Farmers' community is encouraged for allocating more land and water resources for agricultural use and farmers are also educated to adopt agricultural innovations for sufficient production in order of get more profit from agriculture by producing some cash crops at an advanced level. Moreover, use of inputs like fertilizers and pesticides cannot be increased beyond certain limits and also because of some health and environmental apprehensions. Therefore, communication is more essential to avoid these challenges by using technological inventions in agriculture sector for improvement of the sector.

Punjab is the largest province of Pakistan in terms of population, and also has the largest and fastest growing economy in the country especially, dominates in the agriculture sectors of the Pakistan. Punjab province of Pakistan has one best irrigation system amongst others in the world; this irrigation system was developed by the British during their control on subcontinent. 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 Lodhran district of Punjab Provincial with lowest Human Development Index within all districts of Punjab Province. There are three tehsils of Lodhran District i.e Lodhran, Kahror Pakka & Dunyapur and 73 Union Councils. The most part of district is rural. The maximum and minimum temperature ranges between 52 °C and 28 °C in summer. During winter, the temperature fluctuates between 21 °C and 5 °C (Malik, T.J., 2009). Besides other business, agriculture is a major source of income for the people of Lodhran 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 Lodhran are, mango, Orange, Mellon, Water Mellon and Date etc. The main vegetables of Lodhran district are potato, onion, carrot, radish, lady finger and cauliflower etc. Most of its rural areas have no approach to the cable network and social media. Farmers' community depends on the some newspapers and Pakistan Television (PTV) with its very low frequency of agricultural programme (i.e. "Kisan Time" and "Haryali"), Radio, agricultural advertisements on PTV and Radio alongwith some newspapers having special editions with regard to agriculture. In this situation the major role for diffusing and adopting new ideas, innovations and adoption of technologies is being played by change agents of the marketing companies and opinion leaders in the area.

Interpersonal Communication

Interpersonal communication is a medium of communication through this medium the people exchange information either each other or with one another. Communication skills are developed and may be enhanced or improved with increased knowledge and practice. During interpersonal communication there is message sending and message receiving. Interpersonal communication is not only the words that two or more people use to communicate one another or each other rather there are many other physical parts of the body involved to contact for different purposes. Some time people contact with other people in a procession which is also a type of interpersonal communication. Interpersonal communication is generally used to direct someone, teach some and to ask something from someone. Interpersonal Communication is major source of communication in the society alongwith other channels of communication. No one can deny the importance of interpersonal communication while learning new ideas and to seek useful information in every field of life.

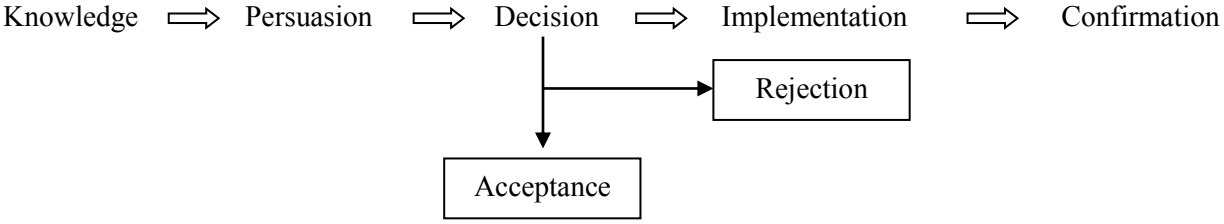
Agriculture departments in addition to mass media channels use interpersonal communication channel for diffusion of different innovations, such as the introduction of certain technology. However, different media have different effects in the diffusion of innovations and adoption of various ne innovations among the different categories of farming society. Some of the communication channels mass media and interpersonal communication channel are more effective at the awareness stage while other play better role on the attitude and adaptors stage. This variation may be caused due to the differential characteristics of the media (channels) concerned, adopters and innovations.

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 innovations in agriculture of Pakistan. Those expected to decide whether to adopt or reject the innovation are farmers in District Lodhran of Punjab Pakistan. According to Rogers there are five types of adopters based on the time; it takes for them to adopt an innovation, innovators, early adopters, early majority, late majority, and laggards. Innovators, the first to adopt, are always venturesome perhaps because they have the ability to understand and apply complex technical knowledge, and the ability to cope with a high level of uncertainty about an innovation due perhaps to their substantial financial resources. Early adopters are often respected by their peers and thus serve as opinion leaders in most social systems. The early majority usually makes their decision after applying deliberate thought, observation and interaction with peers. This group accounts for a large proportion of the total adopters. Those who belong to the late majority hold skeptical attitudes toward the innovation and may adopt out of economic necessity and due to peer pressure. For this group, it is necessary to have an outer environment that totally accepts the innovation. The final category, laggards usually go through a lengthy decision-making process, often talking to people with similar attitudes toward an innovation. Because they often come from a low socio-economic background, they are generally much more cautious than other adopter groups.

The Mechanism of Diffusion

Diffusion is the process by which an innovation is communicated through certain channel over time among the members of a social system. Given that decisions are not authoritative or collective; each member of the social system faces his /her own innovation decision that follows a 5-step process (p.162):



Objectives

1. To examine the role of Interpersonal Communication as a medium for diffusion of various agricultural innovations in Pakistan;
2. To investigate the role of Interpersonal Communication regarding awareness about new inventions in the field of agriculture (i.e technology, pesticides, weedicides, fertilizers and particularly hybrid seeds of different crops in the area under research;
3. To analyses the effectiveness of Interpersonal Communication regarding behavioral change amongst farmers which refers to the adoption of agricultural innovations; and
4. To identify the categories of adopters in accordance with diffusion of innovation theory.

Research Method

The present study is quantitative research and survey research in nature. The research study was aimed to examine the role of inter personal communication in diffusing and adopting new innovation in agriculture sector. The population of the study was the farmers of district Lodhran. Village Council No.32 Chak No.342/W.b, comparatively an advanced and most innovative village council having maximum basic facilities such as; near a city, access to the railway station, GT Road, Post office, School, College, Electricity, water supply and hospital etc. was selected for survey to get the opinion of farmers. In this survey process total sample size for the present study was 150 which were approximately 25% of targeted population. Multi-stage cluster sampling technique was applied. In simple multistage cluster, there is random sampling within each randomly chosen cluster.

Following the requirements for informed consent, at the start of the interview, the respondents were introduced to the purpose of this study. Their participation was solicited, but they were told that their involvement was completely voluntary.

The questionnaire was developed on the basis of the study's main objectives. Closed- ended questions method is adopted. The questionnaire was divided into six parts (1) Farmers' socio-demographic background and farmers' farm characteristics, (2) about interpersonal communication (3) Awareness (4) Knowledge (5) attitudinal & behavioral change (6) Adoption of new innovations.

SPSS computer software has been used to analyse the data collected through above mentioned process.

Findings

Table 1: Medium of Communication for Seeking Agricultural Information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Interpersonal Communication	143	95.3	95.3	95.3
	Newspapers	4	2.7	2.7	98.0
	T.V	2	1.3	1.3	99.3
	Social Media	1	.7	.7	100.0
	Total	150	100.0	100.0	

Table 1 is about frequency and usage of different medium of communication for agricultural information. The table showing that 95.3% farmers use interpersonal communication channel for agricultural information. 2.7% responded in favor of Newspaper, 1.3% use Television and only 0.7% use social media for agricultural information.

Table 2: Discussion about Agricultural Information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	149	99.3	99.3	99.3
	No	1	.7	.7	100.0
	Total	150	100.0	100.0	

Table 2 indicates that 99.3% respondents discuss about agricultural innovations whereas only 0.7% responded that they don't discuss about new agricultural inventions.

Table 3: Frequency of Interpersonal Communication about Agricultural Innovations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Regularly	18	12.0	12.0	12.0
	Occasionally	129	86.0	86.0	98.0
	Not at All	3	2.0	2.0	100.0
	Total	150	100.0	100.0	

The above table is showing that 12.0% respondents discuss about agricultural innovations regularly, 86.0% discuss occasionally and only 2.0% respondents replied they did never discuss about agricultural innovations.

Table 4: Source of Interpersonal Communication to Discuss about Agricultural Innovations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neighboring Farmers	28	18.7	18.7	18.7
	Head	3	2.0	2.0	20.7
	Change Agents of Agri. Marketing Companies	70	46.7	46.7	67.3
	Field Staff of Agri. Dept.	49	32.7	32.7	100.0
	Total	150	100.0	100.0	

Table 4 shows that 18.7% respondents discuss about agricultural innovations with their neighboring farmers, 2.0% with head (*numberdar),* 46.7% with change agents of agri-marketing companies and 32.7% targeted farmers discuss about agricultural innovations with field staff of agriculture extension department.

Table 5: Type of Interpersonal Communication

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Face to Face	108	72.0	72.0	72.0
	Group Discussion	31	20.7	20.7	92.7
	Telephone Call	9	6.0	6.0	98.7
	Farmers Field Schools	2	1.3	1.3	100.0
	Total	150	100.0	100.0	

Table 5 is indicating that 72.0% targeted farmers prefer face to face discussion while seeking information about agriculture, 20.7% respondents are involved into group discussion, 6.0% use telephone calls, and only 2.0% of the respondents attended Farmers Field Schools for seeking agricultural information.

Table 6: Frequency of Information Collection Regarding Agricultural Innovations

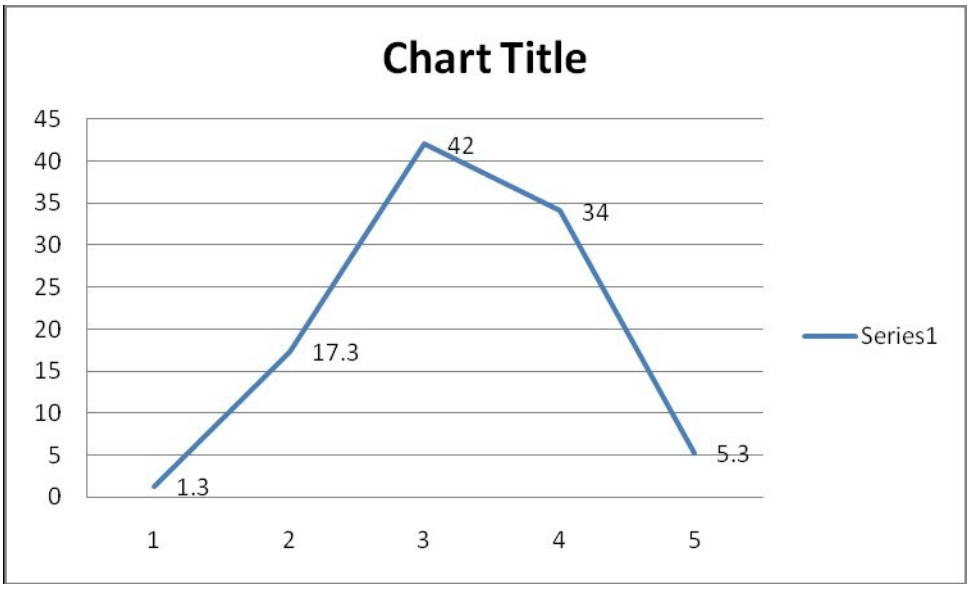
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	146	97.3	97.3	97.3
	No	4	2.7	2.7	100.0
	Total	150	100.0	100.0	

Table 6 indicates that 97.3% respondents collect useful information about agricultural innovations whereas only 2.7% targeted farmers responded that they don't collect any useful information about agricultural innovations.

Table 7: Categorically (Types of Adopters)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Inventor	2	1.3	1.3	1.3
Early Adopter	26	17.3	17.3	18.7
Early Majority Adopter	63	42.0	42.0	60.7
Late Majority Adopter	51	34.0	34.0	94.7
Laggards	8	5.3	5.3	100.0
Total	150	100.0	100.0	

Table 7 indicates the types of adopters in accordance with diffusion theory. Results show that 1.3% adopter are inventors, 17.3% are early adopter, 42.0% belong to early majority adopters, 34.0% are late majority adopters and 5.3% respondents belong to last category i.e laggards. Distribution curve is also shown in the following graph.



Discussion

Interpersonal communication involves interchanging ideas with others using an assortment of methods, such as words, gestures, voice tone, facial expression and body posture. The present study has been designed to examine the role of Interpersonal Communication as a medium for diffusion of various agricultural innovations in Pakistan, to investigate the role of Interpersonal Communication regarding awareness about new inventions in the field of agriculture (i.e. technology, pesticides, weedicides, fertilizers and particularly hybrid seeds of different crops in the area under research, to analyses the effectiveness of Interpersonal Communication regarding behavioral change amongst farmers which refers to the adoption of agricultural innovations; and to identify the categories of adopters in accordance with diffusion of innovation theory. This research has been conducted in district Lodhran of Punjab Province, Pakistan. The research question of the study was established to measure the frequency of Interpersonal Communication and to find how farmers get awareness through Interpersonal Communication in agriculture sector. An important research question was to identify the categories of the adopters of new agricultural innovations in accordance with the diffusion of innovation theory.

In order to create better understandings the available relevant literature has been reviewed to know about the existing work on the same issues and to identify that what should be done as a new and unique work. It is pertinent to mention here that previously there is a very low frequency of such type of the researches particularly in Pakistan. There are some old researches investing the role of mass media for example radio, television and newspapers within the Pakistan however internationally we may find a considerable work on effectiveness of face to face communication and other types of interpersonal communication. Finding of the study support the existing work of researchers and conclude the importance of interpersonal communication in agriculture sector of Pakistan. A questionnaire in the light

of objectives and research question and research problem with a fixed sequence and wording was prepared with closed ended questions and scheduled interviews were conducted.

The main objective and essential question of the study is to find out the frequency and usage of different medium of communication for agricultural information. It has been found out that the 95.3% respondents farmers use interpersonal Communication channel for agricultural information which shows that interpersonal communication has great importance in agriculture and farmers use this type of communication for seeking useful information regarding agriculture and agricultural innovations. According to collected data 99.3% respondents discuss about agricultural innovations whereas only 0.7% responded that they don't discuss about new agricultural inventions. Only 2.7% responded in favor of Newspaper, 1.3% is using Television and only 0.7% use social media for agricultural information. While discussing about different innovations in the agricultural sector, for example; fertilizers, pesticides, seeds and agricultural technology. The responses of the targeted farmers showing that the farmers having own land discus about fertilizers and tech 24.7% farmers discuss about fertilizers, 36.7% discuss about Pesticides, 31.3% talk to each other about seeds and 7.3% farmers discuss about Agricultural technology and on the other hand the farmers who have acquired the agricultural land on lease they are keen to discuss about cultivation of soil, usage of seeds and pesticides. However, a large number of farmers discuss with either other farmers or change agents of private agri-marketing companies occasionally. From the findings of this study it has been noted that mostly farmers discuss about agricultural innovations with change agents of agri-marketing companies followed by field staff of agriculture extension department. Face to face discussion is much effective for seeking guidelines and information about agricultural innovations. Farmers are of the view that they collect useful information regarding agricultural innovations and their usage for enhancement of crop production and yield by using new agri-inventions.

While identifying the categories of adopters in accordance with diffusion theory, results show that 1.3% adopter are inventors, 17.3% are early adopter, 42.0% belong to early majority adopters, 34.0% are late majority adopters and 5.3% respondents belong to last category i.e laggards. These results are supporting the diffusion theory.

Hypothesis regarding frequency of interpersonal communication and awareness about agricultural innovations and behavioral change of the farmers for adoption of agricultural innovations have established whereas, the hypothesis regarding Education and Adoption of agricultural Innovations has also established.

Conclusion

The present study is a quantitative survey research which has been designed mainly to find out the impact of Interpersonal Communication on diffusion of innovations in agriculture sector of Pakistan. This research has been conducted in district Lodhran of Punjab Province, Pakistan, multistage sampling technique has been used to interview the targeted respondents through self administered questionnaire with closed ended questions. Farmers were personally contacted to get valuable information in order to complete this research work. The collected data have been analyzed through computer software of statistics "SPSS". Findings of research study indicate that Interpersonal Communication Channel is playing very vital role in educating farmers' community of Distric Lodhran. Findings of the present study indicate that 95.3% farmers use interpersonal Communication channel for agricultural information. 2.7% responded in favor of Newspaper, 1.3% use Television and only 0.7% use social media for agricultural information. These results show high frequency of interpersonal communication amongst the farmers. During the survey, about 99.3% respondents agreed that they discuss about agricultural innovations whereas only 0.7% responded that they don't discuss about new agricultural inventions. 12.0%

respondents discuss about agricultural innovations regularly, 86.0% discuss occasionally and only 2.0% respondents replied they did never discuss about agricultural innovations.

The Change agents of Agri-marketing companies are playing main role for disseminating agricultural information amongst farmers to adopt new innovations as 46.7% respondents discuss with these change agents to collect information about agriculture and innovations followed by field staff of agriculture extension department as 32.7% 18.7% respondents discuss with their neighboring farmers and only 2.0% with numberdar. About 72.0% targeted farmers prefer face to face discussion while seeking information about agriculture, 20.7% respondents are involved into group discussion, 6.0% use telephone calls, and 2.0% of the respondents attended Farmers Field Schools for obtaining agricultural information

According to survey the 97.3% respondents collect useful information about agricultural innovations whereas only 2.7% targeted farmers responded that they don't collect any useful information about agricultural innovations and they inspired through interpersonal communication to adopt agricultural innovations. While identifying the categories of adopters of the agricultural innovations, the data showed that 1.3% adopter are inventors, 17.3% are early adopter, 42.0% belong to early majority adopters, 34.0% are late majority adopters and 5.3% respondents belong to last category laggards.

Recommendations

Considering the findings of present study, it is concluded that the interpersonal communication channel is play very vital role in education the farmers' community. The results of the study are showing that the face to face communication is more effective than other types of the interpersonal communication.

The representatives of the private companies are playing an important role in order to facilitate the farmers through spreading information regarding agricultural innovations. On the other hand, the field staff of the agriculture extension department has also an important role in diffusion of innovations in agriculture sector of Pakistan. In this situation this is necessary that the private companies may consider appointing the most relevant and qualified staff to facilitate the farmers accordingly.

The agriculture extension department should also consider the impact of interpersonal communication on agriculture of the country while appointing the field staff. Agriculture department should appoint trained and qualified representatives in respective in accordance with the crops of the area.

For capacity building of the field staff of any organisation, the experience sharing programmes should be arranges time by time. Number of field activities such as training workshops and informative seminars should be increased.

The farmers should be made realised the benefits of new agriculture technology particularly while cultivating the land for any crop.

Farmers' field schools should be established on village level and the experts in the field of agriculture in local language should be preferred to train the farmers in order to adopt agricultural innovations for increasing their yield rate and adoption of new agricultural innovations. Government of Pakistan should start projects for the development of agriculture and to facilitate the far0mers in order to train them in accordance with new ideas in the agricultural sector. Most of Pakistani farmers' education level is also low therefore government should start technical and educational programmes for farmers in their areas and enhance the capacity of farmers by using information communication technologies that farmers can also get good benefit from these technologies and increase their income and improve their standard of life. Furthermore, there is shortage of electricity in remote areas of Pakistan which have also

decreased the agriculture production therefore it is also important to create alternative sources for increase the agriculture production in these countries such as solar energy system for agriculture development. In whole process of training and educating the farmers, Interpersonal Communication medium may play very important role.

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Masrur Alam Khan post-doctorate (Fulbright Scholar) USA, is one of the senior most communication professor in the country and presently heading postgraduate studies of media sciences at Riphah International University Islamabad, Pakistan. His area of academic interest is social media, Interpersonal and development Communication. Email: masrur.alam@riphah.edu.pk

Pervaiz Akhter is a research fellow of PhD communication at University of Central Punjab, Lahore holds MS degree in Media Studies from Riphah International University, Islamabad, Pakistan.