

IDENTIFICATION OF FACTORS CAUSING COMMUNICATION GAP AMONG FARMERS, EXTENSION PERSONNEL AND RESEARCHERS IN KHYBER PAKHTUNKHWA-PAKISTAN: FARMER'S PERSPECTIVE

AYESHA KHAN¹, GHULAM FAROOQ², UROOBA PERVAIZ¹, MUHAMMAD ZAFARULLAH KHAN¹ AND MAHMOOD IQBAL¹

1. Department of Agricultural Extension Education and Communication, The University of Agriculture Peshawar, Khyber Pakhtunkhwa-Pakistan
2. Chief Executive Officer MDS-AGROTECH (Market Development Solutions (Pvt.) Ltd.)

Corresponding Author: Ayesha Khan

ABSTRACT

The study explores the barriers to communication causing communication gap regarding agricultural production technology, among the pivotal trio: the researchers, the extension personnel and the farmers. Data was collected from four selected districts, one each from the four agro-ecological zones of Khyber Pakhtunkhwa. A total of 240 farmers, 60 from each selected district were randomly sampled following multistage sampling technique. The data was collected through well-designed and pre-tested interview schedule, analyzed using SPSS and presented as counts, percentages and Chi-square test. An overwhelming majority (95%) of the farmer respondents stated wide communication gap between extension personnel, researchers and farmers. 63% of the farmers had no contact with extension staff of their area while 75% of farmers had knowledge about the research station of their respective districts. The visit frequency of researchers and especially of extension staff remained very poor and limited indicating weak linkages and communication gap. Main sources of knowledge about modern technology were informal such as fellow farmers (63%) followed by electronic media (34%) and extension staff as 22%. The study found wide communication gap among the trio i.e. researchers, extension personnel and farmers. It is concluded that the following barriers have significant relationship in causing communication gap among the trio, i.e. lack of: interest, funds, cooperation and coordination, mobility, combine activities, proper policy and planning. It is recommended that the identified barriers need to be addressed properly to overcome communication gap and linkages, cooperation and coordination be strengthened among the researchers, extension and farmers for agricultural development.

Keywords: *communication gap, extension personnel, factors causing communication gap, farmers, information communication, researchers*

INTRODUCTION

Agricultural extension system is vital for the development of agriculture. The ultimate goal of agricultural extension is to improve the socio-economic conditions of farming communities through the transfer of improved farming practices and modern technologies to the rural people (Sanaullah and Pervaiz, 2019). Agricultural extension services carry out this responsibility by using various strategies to contact and encourage farmers to adopt agricultural innovations. The

extension services also acts as a feedback mechanism to researchers on problems faced by farmers (Bhuiyan, 1978).

Communication in agricultural extension involves conveying improved and recommended agricultural technologies to farming communities (FAO, 2000; Perviaz *et al.*, 2020). The primary purpose of this interaction between farmers and extension workers is to uplift living standards of farm people through increased agricultural production and improvement in income. Generally the goal of extension process is to enable people to use these technologies, skills, knowledge and information to improve their socio-economic conditions (Farooq *et al.*, 2007; FAO, 2000) and increase overall production (Safdar and Pervaiz, 2020). To be effective and efficient in achieving this goal, extension needs systematic and planned efforts i.e. an effective communication system. Without an effective system of communication within the extension services and between it and farmers, agricultural extension cannot achieve much (Benor *et al.*, 1984).

Agricultural development can be closely and directly linked to the overall development of agro-based countries, where agriculture holds a pivotal position, being the main profession of rural people (Mehmood *et al.*, 2018). In fact, “no country anywhere has ever reached an advanced stage of economic development in the absence of agriculture as its primary engine of growth” (Pickering, 1989). But agricultural production in these countries remained low and it is believed that lack of technical knowledge at the farm level is the principal factor for poor agricultural productivity.

Agricultural sector performance remains low and constrained due to weak institutional linkages in disseminating modern technology to the farmers (Farooq and Ishaq, 2005). An efficient and smooth process of information communication affects the two-way channel of interaction and flow of useful information from the researchers needed by farmers and of farmer's issues and concerns to the researchers for resolution, through the extension personnel.

According to Food and Agriculture Organization (FAO, 1985) in many developing countries, wide adoption of research findings by majority of farmers remains quite limited. There are many weaknesses identified in the existing extension systems (Malik and Prawl, 1993). One of most important is non-availability of timely information about new technologies and its improper utilization, besides, unqualified staff, outdated syllabi, lack of in-service training and no use of audio-visual aids.

A number of factors are responsible for creating this communication gap among the trio: weak research-extension linkages, lack of resources, unavailability of mobility, no training opportunities for updating extension personnel knowledge (Sandhu, 1993). Inefficient and isolated agricultural extension system is responsible for low production of major crops (ADB, 1999; NRSP, 1999; Butt *et al.*, 2005; Khan, 2005). Communication between different stakeholders can be improved through use of modern communication tools like ICTs for quick adoption (Salam and Khan, 2020).

This situation calls for smooth system of communication from farmers to researchers and from researchers to farmers. This passage is provided by agricultural extension services. But unfortunately extension services have failed in performing its role efficiently and effectively

creating communication gap among researchers, farmers and extension personnel. There is a need to find ways in which the limited number of extension agents can serve a large number of farmers with optimal results (Lwoga *et al.*, 2011). This study was, thus conducted to find out the factors responsible for creating communication gap among researchers, extension personnel and farmers.

Objectives

The study has the following objectives;

1. To examine the existing pattern of farmers contact with extension personnel and researchers.
2. To identify the role of different information sources in creating awareness.
3. To identify the factors responsible for creating communication gap.
4. To suggest recommendations for future policy implications.

MATERIALS AND METHODS

The universe of this study is Khyber Pakhtunkhwa. It is divided in to 4 agro-ecological zones and one district was randomly selected from each zone namely Bannu, Mansehra, Mardan and Swat by adopting multistage sampling technique (Cochran, 1977 and Sanaullah and Pervaiz, 2019). From each selected district, two villages were randomly selected, 30 farmers were randomly selected from each selected village, thus, giving a total of 240 sample respondents. A well structured and pre-tested interview schedule, written in English, was used to collect the required information from sample farmers. For collection of reliable data questions were asked in local language. Collected data was analyzed using Statistical Package for Social Sciences (SPSS V.20) and results were presented using counts and percentages, and Chi-square test. To test the association between contact with extension personnel and the knowledge about modern agricultural technology, a Chi-square test was used at 5% level of probability. Factors responsible for creating communication gap were also analyzed using a Chi-square test.

RESULTS AND DISCUSSION

Acquaintance with Extension Personnel

Extension services are very important for agricultural development. Extension services are supposed to work as a bridge between farmers, researchers, extension and teaching institutions. Extension personnel help farmers to adopt improved practices to enhance productivity, increasing income and improve quality of life (Robertson, 2013). The collected data regarding respondents contact with extension personnel are depicted in Table 1. Sarcastically enough, only 90 (37%) sample respondents knew about extension personnel, 54 of them belonged to Mansehra. In Swat, being hilly and remote area, only two sample respondents reported that they knew about the extension personnel. On the other hand, a vast majority of the sample respondents i.e. 150 (63%) reported that they had no contact with extension personnel. In this era of IT, unfortunately an overwhelming majority of farmers did not know about extension personnel not to speak of their responsibilities and duties. Almost opposite results were obtained

by Pervaiz (2009) who reported that 54% of respondents had contact with extension worker as against 46%.

Table 1 *Respondents Stating Acquaintance with Extension Personnel*

Location	Contact with Extension Personnel				Total
	Yes		No		
	No.	%	No.	%	
Bannu	19	32	41	68	60
Mansehra	54	90	6	10	60
Mardan	15	25	45	75	60
Swat	2	3	58	97	60
Total	90	37	150	63	240

Extension Personnel Field Visit

Field visits are necessary for farmers to gain practical know-how through demonstration and discussion by extension workers in local language. This provides an opportunity to learn by doing and transfer practical and timely information on different aspects to farmers (Sanaullah *et al.*, 2020; Siddiqui, 2003). The data presented in Table 2 showed that extension personnel's visit frequency was not only poor and irregular but majority of the respondents i.e. 174 (72%) of the total sample were ignorant as against 66 sample respondents. With only 28% in response to the frequency of extension personnel's visit to farmers' fields, only one sample respondent from district Mansehra reported that extension staff visited him on daily basis. Only nine sample respondents (4%) reported that extension personnel visited them on weekly basis i.e. eight in Mardan and one in Swat. Visit on monthly basis was reported by 24 sample respondents i.e. 19 from Mansehra and 5 from Mardan. Visit on yearly basis was reported by 32 sample respondents in the study area. Out of these 32 respondents, 24 were in district Mansehra, four in Bannu, three in Mardan and the remaining one in district Swat. This frequency distribution showed that extension staff visits remained very limited which indicates weak linkages and communication gap between farmers and extension personnel. Similar results were obtained by Pervaiz (2009) and Pervaiz *et al.* (2018). Overall analysis of data showed that only two respondents were visited in Swat while only eight respondents in Mansehra were not visited by the extension personnel.

Table 2 *Farmers stating frequency of extension personnel's field visits*

Location	Frequency of Field Visit					Total
	No Visit (%)	Daily (%)	Weekly (%)	Monthly (%)	Once A Year (%)	
Bannu	56 (93)	-	-	-	4 (7)	60
Mansehra	8 (13)	1 (2)	8 (13)	19 (32)	24 (40)	60
Mardan	52 (87)	-	-	5 (8)	3 (5)	60
Swat	58 (96)	-	1 (2)	-	1 (2)	60
Total	174 (72)	1(1)	9 (4)	24 (10)	32 (13)	60

Association between Contact with Extension Personnel and Knowledge about Modern Technologies

Analysis in Table 3 indicated the association between contact with extension personnel and knowledge of the sample respondents about modern agricultural technologies. A Chi-square test was used to find the association between the two attributes. It is evident that there existed a highly significant association (as $P < 0.05$) between contact with extension personnel and knowledge about modern agricultural technologies. P- Value is 0.000, which showed that contact with extension personnel had strong relationship with the knowledge of modern agricultural technologies and it means that those farmer respondents who had contact with the extension personnel know much more about the modern techniques as compared to those who did not have any contact with extension worker. Abrehaley (2007) reported that frequent extension-farmers contact significantly affect farmers' exposure about modern technologies. Tsinigo and Behram (2017) found that number of extension visit has a great influence on farmers' decision to adopt modern practices as well as expose them to these practices.

Table 3 *Association between Contact and Knowledge about Modern Technologies*

Contact with Extension Personnel	Knowledge about Modern Technologies		Total	Chi-Square value	p-value
	Yes	No			
Yes	88	2	90	48.350	0.000
No	84	66	150		
Total	172	68	240		

Respondents Stating Knowledge /Sources of Knowledge about Research Station

There is a well known proverb that "Knowledge is Power". Agricultural research organization and extension department are responsible for technology generation and transfer (Idachaba, 1987). In many countries, both organizations face a lot of problems like lack of coordination and weak linkages in technology transfer (Kaimowitz *et al.*, 1990; Eponou, 1993; and Iqbal *et al.*, 2022). The data given in Table 4 showed that 180 (75%) respondents knew about research station while 60 sample respondents did not know about research station. Out of these 60 respondents, 31 were in Bannu and 18 were in Mardan, six in Swat and five in Mansehra. Regarding the source of knowledge about research station, vast majority of 133 (55%) sample respondents knew by themselves about research stations. The staff of Pesticides Company as a source was reported by 17 sample respondents. This showed that pesticide companies were also playing their due role in creating awareness among the farming community. Only seven respondents reported that visit to the research station resulted in its knowledge. A vast majority of 142 sample respondents stated that their source of knowledge about research station was fellow farmers. Strangely enough only 28 (12%) sample respondents reported that they knew research station through extension staff.

Overall analysis of data showed that majority of the farmers had knowledge about research station from fellow farmers, followed by their self knowledge and the extension staff. Zinnah (1990) reported that common source of information of majority (64%) of sample respondents

were fellow farmers. The data given in Table 4 also showed that the role of extension staff remained very poor in creating awareness about the research station in the area.

Table 4 *Respondents Stating Knowledge/Source of Knowledge about Research Station*

Location	Knowledge about Research Station		Source of Knowledge about Research Station				
	Yes (%)	No (%)	Yourself (%)	Extension Staff (%)	Fellow Farmer (%)	Visit To Research Station (%)	Pesticide Company Staff (%)
Bannu	29 (48)	31(52)	12 (20)	13 (22)	20 (33)	1 (2)	-
Mansehra	55 (92)	5 (8)	46 (77)	7 (12)	40 (67)	5 (8)	-
Mardan	42 (70)	18 30)	31 (52)	7 (12)	31 (52)	-	-
Swat	54 (90)	6 (10)	44 (73)	1 (2)	51 (85)	1 (2)	17 (28)
Total	180 (75)	60 (25)	133 (55)	28 (12)	142 (59)	7 (3)	17 (7)

Note: Totals may not tally due to multiple answers

Research Staff's Visit to Farmers Field

The question was asked whether agricultural scientists working in the research station did pay any visit to the farmers' field. The data depicted in Table 5 showed that only 18 (8%) sample respondents reported the visit of research official to their farm while a vast majority of 222 sample respondents reported that research staff did not visit their fields. Furthermore, 18 sample respondents who were visited by research officials were asked about the reason for paying the visit to their farms. The research staff provided information regarding different crops was reported by 18 sample respondents, 10 in district Mansehra, six in Mardan and two in Bannu. However, 10 sample respondents out of 18 also reported that the research staff solved their particular problem. Moreover, these respondents were in district Mardan and Mansehra. It was clear that the communication gap was the main hurdle among the farmers, extension staff and the researchers as there is no contact.

Table 5 *Respondents Stating Research Officer's Visit to Farm and Its Reason*

Location	Research Officer's Visit To Your Farm			
	Visited The Farm		If Yes, Then Reason For Visit	
	Yes (%)	No (%)	To Provide Information (%)	To Solve Particular Problem (%)
Bannu	2 (3)	58 (97)	2 (3)	-
Mansehra	11 (18)	49 (82)	10 (17)	5 (8)
Mardan	6 (10)	54 (90)	6 (10)	5 (8)
Swat	-	60 (100)	-	-
Total	18 (8)	222 (92)	18 (8)	10 (4)

Sources of Information about Modern Agricultural Technology

Information is very important for the adoption and diffusion of any innovation. In other words, authentic sources of information and rapid diffusion of new agricultural machinery are positively correlated and agricultural development is not possible without the use of modern technology

(Pervaiz, 2009; Oladosu and Okunade, 2006). Information is usually given to the farmers either through electronic media, print media or personally. In Pakistan, majority of farmers, particularly small farmers were not aware of most of new agricultural technologies. The data given in Table 6 indicates that in all the selected districts, only 53 (22%) sample respondents reported that they got information from extension staff as against 187 (78%) sample respondents. Strangely, only seven (3%) sample respondents in district Mansehra got information from research staff. Wossen *et al.* (2017) opined that constant and regular extension-farmer contact helps to create awareness about latest technologies and there subsequent adoption by farmers.

Mass media methods are useful in making many people aware of new ideas and practices. Electronic media as a source of information and knowledge was reported by 81 (34%) sample respondents. Again majority (33) of these respondents were in district Mansehra, followed by 26 sample respondents in district Mardan. Poor number of respondents in district Bannu and Swat could be attributed to the fact that language was the main barrier to understand the message. It is generally observed that agricultural programs were aired in Urdu and Punjabi and very seldom in other languages. Lastly, the majority of 152 (63%) sample respondents reported that they got knowledge and information from fellow farmers regarding modern agricultural technologies.

Aziz and Khan (2021) also reported that only 14.3% avail information about modern practices from extension agents, 9.9% from radio and 7.1% from TV. From the above discussion it is concluded that there was insignificant linkages of extension, research and farmers that is why only 25% of the sample respondents quoted the source of knowledge as extension and research staff. This showed that there was inefficient extension system and until and unless this system is strengthened agriculture could not be developed.

Table 6 *Respondents Stating Source of Knowledge about Modern Agricultural Technology*

Location	Source of Knowledge about Modern Agricultural Technology							
	Extension Staff		Research Staff		Electronic Media		Fellow Farmer	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Bannu	17 (28)	43 (72)	-	60 (100)	17 (28)	43 (72)	31 (52)	29 (48)
Mansehra	21 (35)	39 (65)	6 (10)	54 (90)	33 (55)	27 (45)	42 (70)	18 (30)
Mardan	14 (23)	46 (77)	-	60 (100)	26 (43)	34 (57)	54 (90)	6 (10)
Swat	1 (2)	59 (98)	1 (2)	59 (98)	5 (8)	55 (92)	25 (42)	35 (58)
Total	53 (22)	187 (78)	7 (3)	233 (97)	81 (34)	159 (66)	152 (63)	88 (37)

Communication Gap among the Trio

Communication is a vital issue in agriculture, conveying research findings related to improved and recommended agricultural practices through extension workers to clients/farmers in order to improve their agricultural production for overall development of agriculture (Siddiqui and Mirani, 2012). The whole process of agricultural development showed weak linkages, between its different components i.e. research, extension and farmers (Sharma, 2003; Mubangizi *et al.*,

2004). The respondents clearly viewed that their existed big communication gap among researchers, extension personnel and farmers, as reported by 227 (95%) sample respondents. Only 13 (5%) sample respondents reported that there was no communication gap. From Table 7 it can be concluded that there is a big communication gap and this gap needs to be bridged down for agricultural development.

Table 7 *Respondents Stating Communication Gap among Trio*

Location	Communication Gap		Total
	Yes (%)	No (%)	
Bannu	58 (97)	2 (3)	60
Mansehra	55 (92)	5 (8)	60
Mardan	54 (90)	6 (10)	60
Swat	60 (100)	-	60
Total	227 (95)	13 (5)	240

Association between Communication Gap among Trio and Factors responsible for Communication Gap

Analysis in Table 8 indicated the association between communication gap and factors responsible for communication gap among researchers, farmers and extension personnel. A Chi-square test was performed which showed that there existed a highly significant association ($P < 0.05$) of communication gap among the trio for all other factors except for language which was non-significant. The reason for this could be that mostly the local language is used for communication which the farmers spoke and understand, so it had no role in creating communication gap. Distance had significant affect on communication gap because as area under jurisdiction increases the chances of contact between extension personnel, researchers and farmers decreases, as it becomes difficult to cover all the area. Lack of interest and knowledge also contribute to communication gap because when they did not take interest and were not knowledgeable how could they disseminate the information effectively to the farmers. Due to lack of cooperation and coordination, combine activities were not arranged which resulted in communication gap. Due to lack of funds the activities were not properly planned, organized and no schedule was followed, so mostly the farmers were unaware of the activities and could not participate in it which created communication gap among extension personnel, researchers and farmers. Previous research studies found that lack of budget and lack of sufficient staff pose constraints on extension agents' ability to visit farmers' field (Sulaiman and Ban, 2003; Shandana and Khan, 2022). Lack of mobility facility strongly restricts the extension personnel and researchers ability to travel around easily and contact the farmers to provide required information as and when needed. This factor also affected the interest of staff in their jobs which adversely affected their performance and created communication gap. Administrative and political interference also resulted in communication gap because due to such interference the staff is unable to properly conduct their activities. Government policy also plays an important role because due to unworkable policy and rules improvement could not be brought and resulted in communication gap. Adeel *et al.* (2016) pointed that different advisory methods can be employed to freely share new information and knowledge between advisors and their target audience i.e. farmers like electronic media, ICTs mobile etc. to overcome the communication gap.

Table 8 *Association between communication Gap among Trio and Factors responsible for Communication Gap*

Factors responsible for communication Gap		Communication Gap		Chi-Sq	P-Value
		Yes	No		
Distance	Yes	81	0	7.002	0.008***
	No	146	13		
Language	Yes	15	0	0.916	0.338 ^{NS}
	No	212	13		
Lack of interest	Yes	196	0	61.225	0.000***
	No	31	13		
Lack of knowledge	Yes	73	0	6.008	0.014**
	No	154	13		
Lack of coordination and cooperation	Yes	122	0	14.210	0.000***
	No	105	13		
Lack of planning	Yes	113	0	12.229	0.000***
	No	114	13		
Lack of combine activities	Yes	92	0	8.544	0.003***
	No	135	13		
Lack of funds	Yes	137	0	18.282	0.000***
	No	90	13		
Lack of mobility of extension personnel	Yes	106	0	10.873	0.001***
	No	121	13		
Administrative interference	Yes	55	0	4.086	0.043**
	No	172	13		
Political interference	Yes	77	0	6.493	0.011**
	No	150	13		
Government policy	Yes	113	0	12.229	0.000***
	No	114	13		

Source: Calculation by Author

Note: **, *** indicates significant at 5 and 1 percent level of probability. NS shows non-significant.

Suggestions to Overcome Communication Gap

Many and varied nature of suggestions were offered to overcome the problem of communication gap. The sample respondents stressed on the mobility of extension staff. The majority 212 (88%) respondents suggested to improve mobility of the extension personnel to pay field visits will help overcome communication gap. Coordination and cooperation should not only be strengthened but also expedited as suggested by 216 (90%) sample respondents as given in Table 9. Proper planning of activities was forwarded by vast majority of respondents i.e. 220 (92%) of the total sample. 132 (55%) sample respondents suggested provision of funds while 189 sample respondents reported that extension, research staff along with farmers should take interest in farming activities. Strong liaison among the trio was emphasized by 99 sample respondents and stressed that extension staff should take the problem of farmers to research staff and solution be

taken back to farmers from researchers and teaching institutions. Check and balance was the last suggestion given by 76 (32%) sample respondents.

Table 9 *Respondents Stating Suggestions to Overcome Communication Gap*

Location	Suggestions To Overcome Communication Gap						
	Provide Mobility (%)	Increase Cooperation and Coordination (%)	Proper Planning of Activities (%)	Provision of Funds (%)	Take Interest In Activities (%)	Liaison Among The Trio (%)	Check and Balance System (%)
Bannu	58 (97)	58 (97)	58 (97)	27 (45)	56 (93)	29 (48)	17 (28)
Mansehra	55 (92)	55 (92)	54 (90)	31 (52)	33 (55)	31 (52)	29 (48)
Mardan	41 (68)	49 (82)	52 (87)	42 (70)	54 (90)	19 (32)	12 (20)
Swat	58 (97)	54 (90)	56 (93)	32 (53)	46 (77)	20 (33)	18 (30)
Total	212 (88)	216 (90)	220 (92)	132 (55)	189 (79)	99 (41)	76 (32)

Note: Totals may not tally due to multiple answers

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that majority farmers have no contact with the extension staff and researchers of the area, but they do know about the research stations in their respective districts. Main sources of information of the farmers about modern technologies were fellow farmers, electronic media and rarely from extension and research staff. The visit frequency of researchers and especially of extension staff remained very poor and limited while majority of the farmers were not even paid any visit. Overwhelming majority of farmers reported that there exists communication gap among extension staff, researchers and farmers and significant relationship exists for the factors, lack of: interest, coordination and cooperation, funds mobility and proper policy and planning.

It is recommended that;

1. Frequent, regular and friendly visits and meetings among farmers, extension staff and researchers need to be strengthened.
2. Extension services should be vigorously activated and equipped with the latest knowledge for effective adoption and diffusion of new agricultural technology among the farming community.
3. Identified barriers needs to be addressed on priority basis in order to bridge down the communication gap between researchers, extension personnel and farmers.
4. For better communication, strong coordination and linkages among researchers, extension personnel and farmers should be developed.

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