Curricula Importance in Enhancing the Capabilities of Agriculture Extension Agents at the Field

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Present study was conducted in the three provinces of Pakistan with the objectives to study the curricula relevancy with the participatory extension, supervision and administration and its practical applicability at the field level. For this extension agents of the selected provinces were selected purposively. Mail questionnaire were used as instruments for data collection form 227 respondents and were analyzed by using descriptive statistics. Findings of the study revealed that the respondent either strongly agreed or agreed with the statements that the curricula in an extension education program helped them to win farmers trust for effective agriculture extension (93%), organize farmers into participatory learning groups (75%) and answer the questions raised by farmers (89%) and to use audio visual aids respectively (92%). This implies for the acceptance of null hypothesis that the curricula improve the extension agent's skills in different field levels programs. Respondent were also either strongly agreed or agreed that the curricula in an extension education program helped them to supervise and guide official duties of field staff (87%), monitor the work of junior field staff (85%), maintain office morale (82%) and to develop leadership potential (86%) of the staff at the field. This implies for the acceptance of alternative hypothesis. Furthermore the respondents also reported rated the curricula contents and structure with respect to scope and topics as excellent (14%), good (61%), fair (21%) and poor (4%). The study as a whole concludes that the extension agents perceived the existing curricula as effective and result oriented. The study recommends that to make the curricula more effective for sustainable agriculture development there is a need for looking into the farmer's needs and expressions, learning and instructional technologies and giving importance to the views of the extension field staff for revision and development of the curricula.

Abstract

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1. Introduction

Education is one of the most influential and powerful tools for advancing knowledge and transforming lives. In developing countries agriculture forms the base of the economy and hence to bring dramatic change in the lives of the majority developing population transformation in agricultural higher education is required. The agricultural higher educational systems are able to educate young leaders with the skills, knowledge and mindset that will enable them to transform the agricultural sector making it more sustainable, provide employment to the growing population and to form capital to regional economies. Also this will be more responsive to the needs and problems of the rural populations in the developing world (Maredia, 2007). The agricultural education system plays an important role in developing knowledge resources and preparing well-trained individuals who serve smallholder farmers through researchers, educators and extension staff as well as prepare the labor force that becomes part of the public, private and the Non Governmental Organizations sectors. An education system that is innovative and responsive to the complex and rapidly changing work environment is critical to ensure the effectiveness of all the institutions that contribute to agricultural development. Curricula must be adapted to the local environment, demand driven, innovative and interactive, dynamic, meet accreditation standards of quality, cutting-edge, versatile and focused on imparting skills and abilities that are transferable to a wide range of occupations (Maredia, 2007). Several studies mentioned that agricultural curricula's shortcoming with regard to labor-market preparation. Rivera (2006) pointed that agricultural higher education institutions do not have a good understanding of the labor market for agriculturally

oriented professions. The system has not kept pace with the labor market realities, have not tracked the changing human resource needs in the agricultural sector, to align the profile of human resource outputs with the agricultural development strategy, and to ensure that students are not prepared for jobs that do not exist.

Urgent change is required in agricultural education. The change needed today is a refocusing on the undergraduate curriculum and student experience so that the agriculture graduates of tomorrow will have the skills and competences to meet the needs of a changing workplace and world Among the competences that students should develop are teamwork and working in diverse communities, working across disciplines, communication, critical thinking and analysis, ethical decision-making, and leadership and management (NRC, 2009).

Maguire and Atchoarena (2003) mentioned that to address the problems of low quality, irrelevancy, lack of funding, poor infrastructure, low faculty morale and high graduate unemployment in the agricultural education system of many developing countries of the world the need for curriculum enhancement and reform is often presented as one of the solutions to these problems. To make the agricultural education system more responsive to the needs of rural and agricultural development Crowder et al. (1998) pointed significant contextual constraints facing agricultural and extension education in developing countries. They include increased unemployment and displacement, budgetary and financial crisis, increase in numbers of urban-based students who lack rural experience, rapid scientific progress and technical change, heightened environmental awareness and calls to integrate them in agricultural education, lack of attention to gender issues, lack of attention to population issues, ill-equipped professionals, low morale and motivation, a disconnect between agricultural education, research and extension, and low status of extension education in the disciplines. Bloom et al. (2006) and other development scholars have compiled significant empirical evidence to show how techno-scientific education when uncritically deployed in particular contexts can contribute to the training of extension practitioners or agents who are inadequately prepared to respond to the complex social and ecological realities of their production systems.

A weak agricultural extension system has been identified as one of the major causes of agricultural development in developing countries (Hartman and Kester, 1989). The lack of proper training and orientation of the extension personnel is one of the major contributing factors to this in the developing regions. In the institutions of higher studies in the developing region's great emphasis is placed on technical knowledge and theoretical methods of teaching (Kochlar, 1986). Thus, extension workers may be sufficiently trained in technical agriculture but they remain poorly equipped for the important human side of agriculture such as aptitude for motivation and teamwork, skills in communication, problem solving and critical thinking. These aspects that are lacking in the curriculum areas vital to effective extension work as technical knowledge. This need is much more vital among resource-poor farming communities where handling changes in technologies, socioeconomic and ecological environments are more complex and dynamic (FAO, 1999). These complex and dynamic issues, in turn, place new demands on the knowledge and skills of the extension worker. The present day extension worker must have both the intellectual and social orientations that elicit the confidence of the farmers with whom he or she interacts. He or she must possess skills for proper analysis, understanding and monitoring of agriculturally related policies as well as ability to facilitate or promote farmers' self-development and business efforts (Hartman, and Kester, 1989). Thus, there is the need to develop more appropriate training curricula that would answer such areas of deficiency.

The person who is responsible for performing all these duties is the extension personal or Agricultural Officer (AO). The main duties of AO include dissemination of improved farm information, motivating farmers to adopt these innovations and monitoring the availability of farm inputs and services (Shah et al., 2009). They are also responsible to develop farmer groups to accelerate knowledge, diffusion and utilization modern technology for agriculture development (Malik, 1990). The real important components of a successful extension program are the human factors (Nielsen, 1995). The AOs conduct farmer's training. The extension personnel develop their schedules for the training of farmers of the area. These schedules are handed over to the supervisory staff, district administration, and research specialists responsible for their monitoring. These schedules are also brought to the knowledge of the farmers by the field assistants. Field assistants (FAs) help them arrange meetings. FAs are sent to the village one day before the actual training day. They announce the purpose, procedure, place and time of the training through local communication systems. They also motivate the farmers to attend the meeting. Farmer's presence remains very low because the extension messages are not demand driven (Shah et al., 2009).

Developing or selecting a curriculum that is effective and likely to meet the target audience's

needs is a challenging and important task of specialists and agents. Studies indicate that curricula developers and reviewers may not always use a comprehensive, systematic process that evaluates the full array of factors that determine whether a curriculum is likely to have its intended impact (Betterley and Dobson, 2000; Mercer, 1998; Tagtow and Amos, 2000). Curricula are an essential tool in every extension educator's toolbox. A review system used to evaluate curricula against clearly articulated standards of content, readability, utility, and intended outcomes can be a useful tool in the development of effective curricula. The extension professionals who have a curriculum-related role in their state to share the article with colleagues, engage them in dialog about their existing curriculum process and criteria, and seek ways to improve their systems. As mentioned that the lack of proper training and orientation of the extension personnel is one of the major contributing factors to the low agricultural development in the developing countries. Therefore, looking in to the importance of curricula in the national and international development the study in hand is design with the following objectives for the determining the different perspectives of the agriculture extension agents in Pakistan.

Objectives of the study:

Study the curricula relevancy with the participatory extension methods used by the extension personnel.

Identify the curricula importance in supervision and administration of different extension programs.

Study how the extension personnel found the curricula in the professional field.

Forward recommendations on the basis of study findings.

2. Materials and methods

The present study was conducted in the three provinces namely, Khyber Pakhtunkhwa, Punjab and Sindh of Pakistan. The overall objective of the study was to investigate the views of agricultural extension personnel about the existing agricultural extension curricula in the agricultural universities of Pakistan. The sample size was determined by using the Fitzgibbon and Morris (1987) table of sample size determination. The total population of agricultural extension personnel in Khyber Pakhtunkhwa, Punjab and Sindh was 70, 487 and 189, respectively. The total of the samples was 746, out of which 229 (40%) were selected purposefully for the study. Detail of population and sample size is given as follows in table 1.

Data was collected from the extension personnel employed in the agricultural extension department of the three provinces through a well structured mail questionnaire having both close and open ended questions. The majority of the respondents (76%) completed and returned the questionnaires. The number of returning mail questionnaire from the agriculture extension personnel was 227. Therefore, the data were analyzed for 227 respondents. Descriptive statistics were used for analyzing the data with the help of Statistical Package for Social Sciences (SPSS) version 16.0. As stated by Ellis and Fouts (1993) pointed that descriptive research can be a very useful strategy for creating a theoretical foundation, to assist with actions and to help understand how to target actions to help resolve social problems. The descriptive statistic includes frequencies, percentage, mean, standard deviation; variance, chi-square and rank.

Table 1. Total population and sample size of agricultural extension personnel

Province Name	Population	Sample Size	%
Khyber Pakhtunkhwa	70	28	40
Punjab	487	195	40
Sindh	189	76	40
Total	746	299	40

3. Results and discussion

Data was collected from the agriculture officers/extension agents on different aspects of curricula in order to reach the details on the curricula aspects applicable in the practical field of the agricultural development in the respective province. The focus is on participatory extension methods, curricula supervision and administration, rating the curricula content and structure, participating in the agriculture extension program and its sub-headings. The discussion starts from the curricula and participatory extension methods with views of the agricultural extension agents.

3.1 Participatory extension methods and curricula

The data in table 2 present the views of the agricultural extension agents regarding the curricula and participatory extension methods. It is evident from the data that 93% respondents either strongly agreed or agreed that the curricula in extension education program helped them to win farmers trust for effective agriculture extension. It means score was 4.03 with a standard deviation of 0.60, implies for less variation in the statement of the respondents, variance of 0.36 and chi-square value of 503.59, with rank of 5. The data also explained that 75% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to organize farmers into participatory learning groups. The mean score for this

was 3.76 with a standard deviation of 0.85. The value of variance stated for variation in respondent's views. The variance for this statement was 0.72 and chi-square value was 260.16, with rank of 10. The data further pointed that 89% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to answer the questions raised by farmers. Its mean score was 4.13, standard deviation of 0.66 (stated less variation in respondents views), a variance of 0.44 and chi-square of 305.18 with a rank of 1. Data in the table also shows that 92% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to use audio visual aids. The mean score of this statement was 4.04 with a standard deviation of 0.57, a variance of 0.32 and chi-square of 470.82, while its rank was 3. This implies for the acceptance of the null hypothesis that the curricula help the extension agent to use audio visual aids. The data further present that 76% respondent either strongly agreed or agreed that the curricula in an extension education program helped them to see things from the farmer's perspective. Its mean score was 3.70 with a standard deviation 0.81 having a variance of 0.66 chi-square value was 345.53 and with a rank of 11. The value of standard deviation and the chi square accept the null hypothesis. Also the data describe that 93% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to publicize programs to ensure maximum attendance of farmers. Its mean score was 4.04 with a standard deviation of 0.60 having a variance of 0.36 and a chi-square value 490.95, while its rank was 4. The standard deviation value implies that the majority of the respondents were agreed for publicity of the program for the maximum participation of the farmers. It is also clear from the data that 95% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to train farmers learning groups in an effective participatory work process, 3% were undecided, while 2% disagreed. The mean score for this statement was 4.10 with a standard deviation 0.50 having a variance of 0.26 and a chi-square value was 510.33, while its rank was 2. In the table 89% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to identify the farmers' needs, 5% were undecided, while 6% of the respondents disagreed or strongly disagreed. The mean score for this statement was 3.97 with a standard deviation 0.73, variance was 0.53 and a chi-square value was 407.07, while its rank was 8. The data in the table also explain that 78% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them find their own solutions of problems, 16% of the respondents were undecided, while 7% disagreed or strongly disagreed. Its mean score was 3.86, standard deviation was 0.83 with a variance of 0.69 and a chi-square value of 256.72 with a rank 7. The data further presented that 82% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to provide necessary guidance to farmers, 14% remained undecided, while 4% disagreed. The mean score was 3.99 with a standard deviation of 0.72 having a variance of 0.53 and a chi-square value of 266.59, while its rank was 9. Also the data describe that 89% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to diffuse agricultural innovation among farmers. The mean score was 4.01 with a standard deviation of 0.66 having a variance 0.44 and a chi-square value of 398.62, while its rank was 6. The statistical analysis rejects the alternative hypothesis by accepting the null hypothesis that the curricula of extension education helped the extension agents to diffuse the modern innovation among the farmers.

Table 2. Respondent's opinion about curricula and participatory extension methods

Curricula in the agricultural extension program helped you too;										
Statement	1(%)	2(%)	3(%)	4(%)	5(%)	M	SD	VR	X^2	R
Win farmers trust for effective extension	32(14)	179(79)	8(4)	6(3)	2(1)	4.03	0.60	0.36	503.59	5
Organize farmers into participatory learning groups	29(13)	140(62)	38(17)	14(6)	6(3)	3.76	0.85	0.72	260.16	10
Answer the questions raised by farmers	60(26)	142(63)	19(8)	6(3)	0(0)	4.13	0.66	0.44	305.18	1
Use audio visual aids	35(15)	174(77)	12(5)	6(3)	0(0)	4.04	0.57	0.32	470.82	3
See things from the farmers' perspective	16(7)	156(69)	34(15)	14(6)	7(3)	3.70	0.81	0.66	345.53	11
Publicize programs to ensure maximum attendance	34(15)	177(78)	9(4)	5(2)	2(1)	4.04	0.60	0.36	490.95	4
Train farmers learning in effective participatory process	37(16)	179(79)	7(3)	4(2)	0(0)	4.10	0.51	0.26	510.33	2
Identify the farmers' needs	36(16)	165(73)	13(6)	9(4)	4(2)	3.97	0.73	0.53	407.07	8
To help farmers find their own solutions of problems	39(17)	138(61)	36(16)	8(4)	6(3)	3.86	0.83	0.69	256.72	7
Provide necessary guidance to farmers	48(21)	138(61)	31(14)	10(4)	0(0)	3.99	0.72	0.53	266.59	9
Diffuse agricultural innovation among farmers	39(17)	163(72)	13(6)	12(5)	0(0)	4.01	0.66	0.44	398.62	6

3.2 Supervision and administration of the subordinates

Data presented in table 3 show the respondent's opinion about the administration and supervision process and the curricula helping the extension agents in the practical field. It is clear from the data that 87% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to supervise and guide official duties of field staff. The mean was 3.90, standard deviation 0.79 with a variance of 0.63 and chi-square value was 427.87, while its rank was 1. The chi-square value rejects the alternative hypothesis by accepting the null hypothesis. Also 85% respondents either strongly agreed or agreed that the curricula in an extension education program helped them monitor the work of junior field staff. The mean was 3.84 having a standard deviation of 0.77 with a variance of 0.59 and a chi-square value was 430.73, while its rank was 2 and leads to the acceptance of alternative hypothesis. The data also pointed that 77% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them to coordinate the extension efforts of other allied departments, 13% were undecided, while 9% disagreed or strongly disagreed. The mean score of this was 3.68 with a standard deviation of 0.77 having variance 0.59 and a chi-square value 388.48, while its rank was 7 and the null hypothesis was rejected. The data further revealed that 82% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them maintain office morale, 8% were undecided, while 10% disagreed or strongly disagreed. Mean of this was 3.81, standard deviation was 0.88, and variance was 0.78 with a chi-square value of 347.69 and a rank 3 and leads to the acceptance of alternative hypothesis. The data further described that 86% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to develop leadership potential of the staff, 7% were undecided, while 7% disagreed or strongly disagreed. The mean was 3.80 with a standard deviation 0.73 having a variance 0.53 and a chi-square value was 529.63, while its rank was 4, results the rejection of the null hypothesis. Also the data revealed that 74% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to deal effectively with the problem of subordinates, 14% were undecided, while 12% disagreed or strongly disagreed. The mean was 3.72, standard deviation was 0.88, variance was 0.77 with a chi-square value 260.73 and a rank 5, implies for the rejection of the null hypothesis. Dada further pointed that 76% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to deal effectively with higher authorities, 12% were undecided, while 12% disagreed or strongly disagreed. Its mean score was 3.70, standard deviation was 0.83, and variance was 0.69 and a chi-square value 315.27, while its rank was 6. Here also the null hypothesis was rejected. The data further revealed that 69% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to use local leaders for influencing farmers to change, 10% were undecided, while 20% disagreed or strongly disagreed. The mean was 3.60 with a standard deviation 1.09 having a variance of 1.19 and a chi-square value 165.93, while its rank was 8. This results in the acceptance of alternative hypothesis of rejecting the null one.

Table 3. Respondent's opinion about curricula supervision and administration at the field

Curricula in the extension education program helped you to;										
Statement	1(%)	2(%)	3(%)	4(%)	5(%)	M	SD	VR	X^2	R
Supervise and guide official duties of field staff	30(13)	169(74)	11(5)	10(4)	7(3)	3.90	0.79	0.63	427.87	1
Monitor the work of junior field staff	22(10)	170(75)	16(7)	14(6)	5(2)	3.84	0.77	0.59	430.73	2
Coordinate the extension efforts of other departments	13(6)	163(71)	30(13)	17(97)	4(2)	3.68	0.77	0.59	388.48	7
Maintain office morale	29(13)	157(69)	18(8)	14(6)	9(4)	3.81	0.88	0.78	347.69	3
Develop the leadership potential of the staff	11(5)	184(81)	15(7)	10(4)	7(3)	3.80	0.73	0.53	529.63	4
Deal effectively with problem of subordinates	27(12)	141(62)	32(14)	22(10)	5(2)	3.72	0.88	0.77	260.73	5
Deal effectively with higher authorities	20(9)	151(67)	28(12)	25(11)	3(1)	3.70	0.83	0.69	315.27	6
Use local leaders in influencing farmers to change	37(16)	121(53)	23(10)	34(15)	12(5)	3.60	1.09	1.19	165.93	8

1= Strongly Agree 2=agree 3= Undecided 4= Disagree
5= Strongly disagree M= Mean SD= Standard Deviation VR= Variance
X^2= Chi Square R= Rank

3.3 Curricula contents and structure

The data in table 4 present the respondents' perceptions about the contents and structure of the existing curricula in the Universities. It is clear from the data that 14% respondents rated the curricula contents and structure with respect to scope and topics as excellent, 61% rated it as good, 21% rated it as fair, while 4% regarded it as poor. The mean score

for this was 3.84, standard deviation was 0.70, variance was 0.50 and a chi-square value was 270.59, while its rank was 1. This implies for the rejection of the null hypothesis. Also 4% respondents rated the curricula contents and structure with respect to technical merit as excellent, 62% rated it as good, 15% rated it as fair, 14% respondents regarded it as poor, while 6% considered it as very poor. The mean score was 3.44 with a standard deviation 0.97 and variance 0.95 with a chi-square value 262.58, while its rank was 3. The data further showed that 7% respondents rated the curricula contents and structure with respect to relevance as excellent, 67% rated it as good, 16% rated it as fair, 9% regarded it as poor, while 1% considered it as very poor. Its mean score was 3.68, standard deviation was 0.78, and variance was 0.62 chi-square value was 320.25, while its rank was 2. The data also pointed that 5% respondents rated the curricula content and structure with respect to adaptability as excellent, 55% rated it as good, 20% rated it as fair, 14% considered it as poor, while 6% respondents rated it as very poor. Mean for this statement was 3.39, standard deviation was 1.00, and its variance was 0.98 with a chi-square value 191.92, while its rank was 4.

3.4 Participation in agriculture extension program

The data in table 5 presents respondents' comments about participation in the agriculture extension program. It is clear from the data that 99% respondents considered that all such educational programs should be linked with agriculture extension and allied department for practical implementation and positive results.

4. Conclusion and Recommendations

The study main findings concludes that 93% and 75% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to win farmers trust for effective agriculture extension and to organize farmers into participatory learning groups followed by 89% and 92% respondents that the curricula in an extension education program helped them to answer the questions raised by farmers and to use audio visual aids. This implies for the acceptance of the null hypothesis. The study also concludes that 93% and 95% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to publicize programs to ensure maximum attendance and to train farmers learning groups in effective participatory work process. Furthermore, 87% and 85% respondents either strongly agreed or agreed that the curricula in an extension education program helped them to supervise and guide official duties of field staff and to monitor the work of junior field staff. The chi-square value rejects the alternative hypothesis by accepting the null hypothesis. The study findings further conclude that 82% and 86% respondents either strongly agreed or agreed with the statement that the curricula in an extension education program helped them maintain office morale and to develop leadership potential of the staff, results the rejection of the null hypothesis. The findings also conclude that 14%, 61%, 21% and 4% respondents rated the curricula contents and structure with respect to scope and topics as excellent, good, fair and poor respectively and implies for the rejection of the null hypothesis. Also 5%, 55%, 20%, 14% and 6% respondents rated the curricula content and structure with respect to adaptability as excellent, as good, fair, poor, and very poor. Furthermore, 99% respondents considered that all extension educational programs should be linked with agricultural extension and allied department for practical implementation and positive results. The study as a whole concludes that the extension agents perceived the existing curricula as effective and result oriented in identifying and addressing the problems faced by the farmers in the country. On the basis of study findings the following recommendations are forwarded for curricula improvement and development. Evaluation of curricula of agriculture extension should go beyond analysis of the participant's responses and self-reports. For this the curriculum developers should be open to the farmer's needs and expressions and collaborate with the work of other related national and international agencies as well as considering the community issues, in order to avoid duplication and waste of resources. Curricula for agricultural extension should look at what is being taught, and new issues to determine the content of future agriculture extension curricula. For these new trends in teaching, learning and instructional technologies should be examined and incorporated into curricula. Importance should be given to the feedback from field extension output for revision of the curricula, for this the experiences of the graduates and post-graduates professionals in the service shall be considered. Also participatory method of learning and development of necessary technical, behavioral and social skills need to match the professional demand in the present context.

Table 4. Respondents perceptions about rating the curricula contents and structure

Statement	How would you rate the curricula contents and structure; Excellent(%)	Good(%)	Fair(%)	Poor(%)	Vary poor(%)	M	SD	VR	X^2	R
Scope of topics	31(14)	139(61)	47(21)	10(4)	0(0)	3.84	0.70	0.50	270.59	1
Technical merit	8(4)	141(62)	33(15)	32(14)	13(6)	3.44	0.97	0.95	262.58	3
Relevance	15(7)	151(67)	37(16)	21(9)	3(1)	3.68	0.78	0.62	320.25	2
Adaptability	11(5)	125(55)	46(20)	31(14)	14(6)	3.39	1.00	0.98	191.92	4

Table 5. Respondent's comments about participation in agriculture extension program

Statement	Frequency	Percent
All such educational programs should be linked with agricultural extension and allied department or practical implementation and positive results	224	99
Students should get practical experience like house job of doctors after education and then should be eligible for appointment in the extension department	3	1
Total	227	100

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