

Curricula of Agriculture Extension Education and Communication; Faculty Members Perceptions

Nafees Ahmad¹, M. Israr², Tahir Ali Shah³, Shamsher Ali⁴, M. M. Shafi⁵, M. Ibrahim⁶,
M. Amir Khan⁷ and Noshad Khan⁸

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Abstract

Present study was conducted during 2010, in four Agricultural Universities of Pakistan, with the aim to investigate the perception of the faculty members in agriculture universities about the effectiveness of the existing agriculture extension curricula. For this sample size was determined by Fitzgibbon and Morris (1987) table and grand total of the sample reached to 32. Primary data was collected from the teachers of the concerned universities, through pre-tested structured mailed questionnaire. Data was analyzed using descriptive statistics and chi-square test. Main findings of the study revealed that 100% and 89% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested knowledge and the items which tested comprehension and results the acceptance of null hypothesis. Also 92%, 85% and 81% respondents either strongly agreed or agreed that the students complete the course with a good understanding of agriculture extension program, services and have a good technical understanding of the subject matter respectively and alternative hypothesis was rejected. Moreover 84% and 77% respondents either strongly agreed or agreed that the curricula developed understanding of concepts and principles of the extension subject and improved communication skills. However, 23%, 38% respondents rated the curricula content and structure with respect to scope and topics as excellent and good. It was also found that 15%, 50% and 19% respondents rated the curricula content and structure with respect to technical merit as excellent, good and fair respectively. Major drawbacks in the curricula were less practical work and field involvement, not according to local needs and the problem of repetition/overlapping. The study recommends that curricula should be upgraded from present conditions, made it more practical oriented and practical nature according to the local needs.

Keywords: Curricula development, contents, scope and technical merit, extension education

Introduction

Agricultural extension today is not what it used to be. It is passing through a major transformation for various domestic and global reasons in most of the developing world. The global movement for reforms in extension has emerged because of dissatisfaction with the public agricultural extension systems. These systems are full of flaws when judged against the latest trends in the world, and seem to be terribly outdated (Qamar, 2006). Developing

¹ Department of Economics, University of Malakand Chakdara Dir (Lower), Pakistan

² Department of Rural Development, AMKC, Mardan, The University of Agriculture, Peshawar, Pakistan

³ Department of Soil and Environmental Sciences, AMKC, Mardan, The University of Agriculture Peshawar

⁴ Higher Education Commission, Islamabad, Pakistan

⁵ IDS, KP, Agricultural University Peshawar, Pakistan

⁶ Department of Agriculture and Applied Economics, AMKC, Mardan, The University of Agriculture Peshawar,

⁷ Department of Agriculture Mechanization, AMKC, Mardan The University of Agriculture, Peshawar, Pakistan

⁸ Department of Agricultural Sciences, AIOU-Islamabad, Pakistan



countries lag behind in introducing educational courses on environmental and sustainable agriculture. There is a need to provide such a curricula reorientation to academic institutions to create an environment sensitive faculty and to bring about attitudinal changes among rural communities for sustainable development (NAAS, 2005). Sustainable development of agriculture sector needs conducting training and offering educational programs of international standard that are crucial to the development of human resources. These training have a vital role to play in development of agriculture knowledge. There was continuing emphasis on theory rather than practice and a lack of training needs analysis. The lack of skilled and well-trained personnel in agricultural extension is the main problem of current agricultural extension services in most of the developing world (Cho and Boland, 2002).

A major challenge facing extension systems in developing world in the 21st century is how to contribute to the process of transforming rural and agricultural systems in sustainable ways. This places a tremendous burden on institutions of higher education that are mandated to develop the human resource capacities to confront these challenges. Education in agricultural extension plays a pivotal role in this process. Revitalization of higher education in agriculture and extension education is imperative, if educators are to be successful in developing the human capacities and competencies needed to address both local and global challenges of economic, social, and ecological sustainability in agricultural and rural development (Kroma, 2003). Public extension systems all over the world are being challenged to improve their relevance and effectiveness in contributing to agricultural and rural livelihood sustainability in an environment of increasing economic, social and ecological risk (Beck, 1992; Funtowitz and Ravetz, 1993).

Agricultural extension serves as a bridge between the agricultural research scientists and the potential users of research findings. It aims at helping research scientists to design and undertake needs and problems based research and at the same time encourage and enable farmers and others to adopt new scientific knowledge and useful research results/agricultural technologies for increasing agricultural production leading to enhanced farm income and better quality of life for all in the rural area. Agriculture teaching and training institutes in most of the developing world have irrelevant curricula, teaching learning and training materials insufficient equipment and physical facilities for practical pre- and in-service education and training. Moreover it was observed that agricultural universities at present were performing mainly teaching role whereas the other two roles namely research and extension had suffered severe setback because of lack of funds and inappropriate linkages with research stations/centers and agriculture extension programs (Khan, 2006). Effective curricula are a cornerstone of successful extension programming. 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 & Dobson, 2000; Mercer, 1998; Tagtow and Amos, 2000).

The discipline of agricultural extension education and the supported extension services are unique in its structure and function. It has not been restricted to a single program and activity but has been allowed to adjust according to the changing needs of the situation and time of the society. To meet the challenges of agricultural development there is an urgent need to redefine the structure and functioning of the agricultural extension system. However, to make agricultural extension more viable and an efficient tool of technology transfer, several issues need to be addressed (Patil, 2006). Several studies pointed that the curricula implemented in agricultural higher education system of the developing countries are irrelevant, inappropriate and unresponsive to socioeconomic and technological changes in the rural sector (Wallace, Mulhall and Taylor 1996). According to Khan, (2006), the agriculture extension curricula in

Pakistan remained theory oriented and too much emphasis on theoretical information has resulted in deficient practical skills, initiative, original critical thinking and quality of leadership and communication. Thus, the issue is not that there are no attempts made to review and change the agricultural curriculum over time, but whether the process followed and changes made really meet the needs of stakeholders and the broader goal of rural development. Resting on the above facts the study in hand is design with the main objectives to study the faculty member's perceptions in agricultural universities of Pakistan about the existing agricultural extension curricula. The specific objectives of the study are to investigate the perception of the faculty members in agriculture universities about the effectiveness of agriculture extension curricula.

Materials and Methods

The study was carried out in the four Agricultural Universities i.e. Khyber Pakhtunkhwa, Agricultural University, Peshawar, University of Arid Agriculture, Rawalpindi, University of Agriculture, Faisalabad and Sindh Agriculture University, Tandojam, Pakistan during 2010. The study examined faculty member's responses about existing agricultural extension curricula in the agricultural universities of Pakistan. The total population in the extension departments in the four universities including Professors, Associate Professor, Assistant Professor and Lecturer was 32. Since the population of employee in extension department of the universities was low, therefore 100 percent population was selected for the study. The sample size was determined by using criteria given by Fitzgibbon and Morris (1987). Detail of population and sample is given in Table 1.

Table 1: Total population and selected sample size of faculty members of agricultural universities

University	Population	Sample Size	Percent
KP, Agricultural University, Peshawar (AUP)	6	6	100
University of Arid Agriculture, Rawalpindi (UAAR)	4	4	100
University of Agriculture, Faisalabad (UAF)	12	12	100
Sindh Agriculture University, Tandojam (SAUT)	10	10	100
Total	32	32	100

Source: Concerned University agricultural extension department and own calculations

The sample size of faculty members of the universities was 6, 4, 12 and 10 from the AUP, UAAR, UAF and SAUT, respectively. Grand total of the samples was 32. The questionnaire was properly filled and returned. According to Albert *et. al.*, (2003) high response rate helps to assure that the results represent the current opinions and practices of respondents. Data was collected from the teachers of the concerned universities, through a well structured mailed questionnaire having both close and open ended items. The collected data was analyzed using descriptive statistics i.e. frequencies, percentage, mean, standard deviation, variance and rank were calculated for all of the appropriate questionnaire items with the help of Statistical Package for Social Sciences (SPSS) 13.0. To check the significance, the following formula was used for calculating chi- square value of the questionnaire items.

$$\chi^2 = \sum \frac{(fo - fe)^2}{fe}$$

Where: χ^2 = Chi-square, fo = Frequency observed, fe = Frequency expected

Results and Discussions

Faculty members of the concerned universities were interviewed for data collection on different aspects of curricula in order to reach the details on the different curricula aspects applicable in the practical field for the sustainable agricultural and livelihood development in their respective province. Main focus is on the sub statement of evaluation system of the agriculture extension curricula, confidence level with respect to curricula, overall quality of the curricula, rating the curricula content and structure, major drawbacks in the existing agriculture extension curricula and comments about participation in agriculture extension program. The discussion starts from the perception of the faculty members perceptions about the evaluation system of the agriculture extension curricula and its different sub-statement.

Evaluation system of the agriculture extension curricula

The data in table I present the views of respondents about the evaluation system of agricultural extension curricula in the agricultural universities of Pakistan. It is evident from the data that 100% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested knowledge. Its mean score was 4.35, standard deviation of 0.48, variance of 0.24, with a chi-square value 45.15, and its rank was 1. The statistical results reveal that there is less variation in respondent's views and the null hypothesis was accepted. The data also indicated that 89% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested comprehension, while 8% of the respondents disagreed with the statement. Its mean score was 4.04, standard deviation of 0.87, with a variance of 0.76, chi square value of 34.38, and its rank was 2. The chi-square test result the rejection of alternative hypothesis. The data further expressed that 42% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested application, 19% of the respondents were undecided, while 38% of the respondents disagreed or strongly disagreed. Its mean score was 2.92 with a standard deviation of 1.20, variance 1.43, chi square of 8.23, while its rank was 4. The value of standard deviation and variance explain that there is a great variation in the perception of the faculty members. Data also explained that 35% respondents agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested analysis, 15% of the respondents were undecided, while 50% of the respondents disagreed or strongly disagreed. Its standard deviation was 1.20, with a variance of 1.45, mean score was 2.62; chi-square value was 9 and rank of 5. It is also evident from the data that 35% respondents agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested synthesis, 8% of the respondents were undecided, while 58% of the respondents disagreed or strongly disagreed. Its mean score was 2.5 with a standard deviation of 1.24 variance 1.54, chi square value 12.07, while its rank was 6. The data in the table further explained that 74% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested skills, while 27% of the respondents disagreed. Its mean score was 3.58, standard deviation was 1.03 and variance was 1.05, with chi-square value of 34.38 (and rank 3). Chi-square test value results for the acceptance of null hypothesis.

Table I: Faculty opinion about evaluation system of the agriculture extension curricula

Statement	SA (%)	A (%)	UNC (%)	DA (%)	SDA (%)	M	SD	VR	X ²	R
Knowledge	9 (35)	17 (65)	0 (0)	0 (0)	0 (0)	4.35	0.48	0.24	45.15	1
Comprehension	7 (27)	16 (62)	0 (0)	3 (12)	0 (0)	4.04	0.87	0.76	34.38	2
Application	1 (4)	10 (38)	5 (19)	6 (23)	4 (15)	2.92	1.20	1.43	8.23	4
Analysis	0 (0)	9 (35)	4 (15)	7 (27)	6 (23)	2.62	1.20	1.45	9	5
Synthesis	0 (0)	9 (35)	2 (8)	8 (31)	7 (27)	2.5	1.24	1.54	12.07	6
Skills	3 (12)	16 (62)	0 (0)	7 (27)	0 (0)	3.58	1.03	1.05	34.38	3

Source: Survey data

SA= Strongly Agree	A=agree	UNC= Undecided	DA= Disagree
SDA= Strongly disagree	M= Mean	SD= Standard Deviation	VR= Variance
X ² = Chi Square	R= Rank		

Confidence level with respect to curricula

Data in table II presents the faculty members responses about the confidence level with respect to curricula in the agricultural universities of the country. The data shows that 92% respondents either strongly agreed or agreed that i am confident that students complete the course with a good understanding of agriculture extension program and services, while 8% of the respondents were undecided. Its mean score was 4.31, standard deviation of 0.62, with a variance of 0.38, chi-square value of 31.69, and rank of 1. The alternative hypothesis was rejected and less variation in the respondent's perceptions was noted. The data further indicates that 85% respondents either strongly agreed or agreed that i am confident that students complete the course with a good understanding of use of computer in agriculture extension programs and services, while 15% of the respondents were undecided. Mean score was 4.08, with a standard deviation of 0.63, variance of 0.39, chi-square value of 33.23, with a rank of 2. This implies that the null hypothesis was accepted. Data also presents that 81% respondents either strongly agreed or agreed that i am confident that students have a good technical understanding of the subject matter, 12% of the respondents were undecided, while 8% of the respondents disagreed. Mean score was 3.78, standard deviation of 0.82, with a variance of 0.66, chi-square value of 46.31, with a rank of 3. The data further express that 69% respondents either strongly agreed or agreed that i am confident that when students finish the course of study, they will have a good understanding of what will be expected of them on the job, 19% of the respondents were undecided, while 12% of the respondents disagreed or strongly disagreed with the statement. Mean score for this statement was 3.69 with a standard deviation of 0.97, variance of 0.94 and chi-square of 20.54, while its rank was 4. Here the alternative hypothesis was rejected by accepting the null hypothesis.

Table II: Faculty member's opinion about confidence level with respect to curricula

Statement	SA (%)	A (%)	UNC (%)	DA (%)	SDA (%)	M	SD	VR	X ²	R
I am confident that students complete the course with a good understanding of agriculture extension program and services	10 (38)	14 (54)	2 (8)	0 (0)	0 (0)	4.31	0.62	0.38	31.69	1
I am confident that students complete the course with a good understanding of use of computer in agriculture extension programs and services	6 (23)	16 (62)	4 (15)	0 (0)	0 (0)	4.08	0.63	0.39	33.23	2
I am confident that students have a good technical understanding of the subject matter.	2 (8)	19 (73)	3 (12)	1 (4)	1 (4)	3.78	0.82	0.66	46.31	3
I am confident that when students finish the course of study, they will have a good understanding of what will be expected of them on the job	4 (15)	14 (54)	5 (19)	2 (8)	1 (4)	3.69	0.97	0.94	20.54	4

Source: Survey data

SA= Strongly Agree	A=agree	UNC= Undecided	DA= Disagree
SDA= Strongly disagree	M= Mean	SD= Standard Deviation	VR= Variance
X ² = Chi Square	R= Rank		

Faculty member's opinion about overall quality of the curricula

Data in table III presents the opinion of the respondents about the different statements on the overall quality of the curriculum. It is evident from the data that 84% respondents either strongly agreed or agreed that the curricula developed understanding of concepts and principles, 12% of the respondents were undecided, while 4% of the respondents disagreed. Mean score was 3.96 with a standard deviation of 0.66 and a variance of 0.44, chi-square of 41.31, with a rank of 1. The alternative hypothesis was accepted. Also 77% respondents either strongly agreed or agreed that the curricula improved communication skills, while 23% respondents were undecided. The mean score was 3.85, standard deviation 0.54 with a variance of 0.30 and a chi-square value 44, while its rank was 2. The null hypothesis was rejected on the basis of statistical tests. The data further defect that 31% respondents agreed that the curricula helped in using information technology more effectively, 35% of the respondents remained undecided, while 35% disagreed or strongly disagreed. Mean score was 2.88, standard deviation 0.95; variance was 0.91 with a chi-square value of 12.08, while its rank was 5. The statistical analysis shows more variation in respondent's perception about this statement. The data also indicated that 39% respondents either strongly agreed or agreed that the curricula helped to develop good evaluation skills, 46% of the respondents remained undecided, while 16% of the respondents disagreed or strongly disagreed. Its mean score was 3.27 with a standard deviation of 0.92 and a variance of 0.84 having a chi-square value of 16.69, while its rank was 4. Also it is evident from the data that 62% respondents either strongly agreed or agreed, overall i am satisfied with the quality of the present curricula, 27% of the respondents were undecided, while 12% of the respondents disagreed or strongly disagreed. The mean score for this was 3.58 with a standard deviation of 0.94 having a variance of 0.89 a chi-square value 18.62, while its rank was 3. In this case the null hypothesis was accepted and rejected the alternative one.

Table III: Faculty member's opinion about overall quality of the curricula

Statement	SA (%)	A (%)	UNC (%)	DA (%)	SDA (%)	M	SD	VR	X ²	R
The curriculum develops understanding of concepts and principles.	4 (15)	18 (69)	3 (12)	1 (4)	0 (0)	3.96	0.66	0.44	41.31	1
The curriculum improves communication skills.	2 (8)	18 (69)	6 (23)	0 (0)	0 (0)	3.85	0.54	0.30	44	2
The curriculum helps in using information technology more effectively.	0 (0)	8 (31)	9 (35)	7 (27)	2 (8)	2.88	0.95	0.91	12.08	5
The curricula help to develop good evaluation skills.	2 (8)	8 (31)	12 (46)	3 (12)	1 (4)	3.27	0.92	0.84	16.69	4
Overall I am satisfied with the quality of the subject curricula.	3 (12)	13 (50)	7 (27)	2 (8)	1 (4)	3.58	0.94	0.89	18.62	3

Source: Survey

Faculty rating the curricula content and structure

The data in table IV shows the faculty members opinion about the present curricula content and structure. The data in the table revealed that 23% respondents rated the curricula content and structure with respect to scope and topics as excellent, 38% of the respondents rated it as good, while 38% of the respondents rated it as fair. Mean score for this was 3.88 with a standard deviation 0.76 having a variance of 0.59 and a chi-square value 24, while its rank was 1. Also the data indicate that 15% respondents rated the curricula content and structure with respect to technical merit as excellent, 50% of the respondents rated it as good, 19% of the respondents rated it as fair, while 15% respondents regarded it as poor. Its mean score was 3.65 with a standard deviation 0.94 having a variance of 0.87 and a chi-square value of 17.46, while its rank was 2. The null hypothesis was accepted that majority of the respondents rated the existed curricula technically excellent. The data also depicts that 8% respondents rated the curricula content and structure with respect to relevance as excellent, 46% of the respondents rated it as good, while 23% of the respondents rated it as fair, 19% respondents considered it as poor, while 4% regarded it as very poor. The mean score was 3.35 with a standard deviation of 1.02 having a variance of 1.04 and a chi-square value 14.38, while its rank was 3. The data also shows that 4% respondents rated the curricula content and structure with respect to adaptability as excellent, 42% of the respondents rated it as good, while 35% of the respondents rated it as fair, 12% respondents considered it as poor, while 8% respondents regarded it as very poor. Its mean score was 3.23 with a standard deviation of 0.99 having a variance of 0.98 and a chi-square value of 15.54, while its rank was 4. The alternative hypothesis was rejected by accepting the null hypothesis.

Table IV: Faculty rating the curricula content and structure

Statement	Excellent (%)	Good (%)	Fair (%)	Poor (%)	V. Poor (%)	M	SD	VR	X ²	R
Scope of topics	6 (23)	10 (38)	10 (38)	0 (0)	0 (0)	3.88	0.76	0.59	24	1
Technical merit	4 (15)	13 (50)	5 (19)	4 (15)	0 (0)	3.65	0.94	0.87	17.46	2
Relevance	2 (8)	12 (46)	6 (23)	5 (19)	1 (4)	3.35	1.02	1.04	14.38	3
Adaptability	1 (4)	11 (42)	9 (35)	3 (12)	2 (8)	3.23	0.99	0.98	15.54	4

Source: Field Survey

Faculty member's comments about participation in agriculture extension program

The data in table V described respondents' comments about participation in agriculture extension program. It showed that 58% respondents considered that there should be more opportunities for continuous upgrading for teachers, that institutional infrastructure should be improved (58%), that curricula should be current/upgraded to present conditions (35%), curricula should be made more practical oriented for students (31%), emphasis on practical nature in relevance to the field experience (31%), more practical and field work was needed (27%), faculty members should be involved in curricula development (27%), extension personnel working in the field might be involved in the curricula development (19%), and that practical work should be with the means of electronic media (4%).

Table V: Faculty member's comments about participation in agriculture extension program

Statement	Frequency	Percent
More opportunities for continuous upgrading for teachers	15	58
Institutional infrastructure should be improved	15	58
It should be current/upgraded to present conditions	9	35
Curricula should be made more practical oriented for students	8	31
Emphasis on practical nature in relevance to the field experience	8	31
More practical and field work is needed	7	27
Faculty members should be involved in curricula development	7	27
Extension personnel working in the field may be involved in the curricula development	5	19
Practical work should be with the means of electronic media	1	4

Source: Field Survey

Faculty opinion about major drawbacks in the existing agriculture extension curricula

Data in table VI presented major drawbacks in the existing agriculture extension curricula in views of the faculty members in the universities of Pakistan. The data in the table shows that 35% respondents considered that practical work was not up to the mark, there was less field involvement (27%), it was not according to local needs (23%), repetition/overlapping was always there in the curricula (23%), reference books were very old and unavailable (19%), statistics was little (15%), the curricula content was theoretical and written from the foreign books (8%), curricula was internet based rather than Pakistan based (4%), and that presentation and communication skill development was not much addressed (4%).

Table VI: Faculty opinion about major drawbacks in the existing agriculture extension curricula

Statement	Frequency	Percent
Practical work is not up to the mark	9	35
Less field involvement	7	27
Not according to local needs	6	23
Repetition/overlapping is always there in the curricula	6	23
Reference books are very old and unavailable	5	19
Statistics is little	4	15
Theoretical and written from the foreign books	2	8
Curricula is internet based rather than Pakistan based	1	4
Presentation and communication skills development are not much addressed	1	4

Source: Field Survey

Conclusion and Recommendations

It is concluded from the main findings of the study that 100% and 89% respondents either strongly agreed or agreed that the evaluation system of the agriculture extension curricula was based upon the items which tested knowledge and the items which tested comprehension and results the acceptance of null hypothesis. Further it was noted that 92%, 85% and 81% respondents either strongly agreed or agreed that I am confident that students complete the course with a good understanding of agriculture extension program, services and have a good technical understanding of the subject matter respectively and alternative hypothesis was rejected. Also 84% and 77% respondents either strongly agreed or agreed that the curricula developed understanding of concepts and principles of the extension subject and improved communication skills and having a mean value of 3.96 with a standard deviation of 0.66 and a variance of 0.44, chi-square of 41.31, with a rank of 1. The alternative hypothesis was accepted. The null hypothesis was rejected on the basis of statistical tests. However, 23%, 38% respondents rated the curricula content and structure with respect to scope and topics as excellent, good and fair respectively. Mean score for this was 3.88 with a standard deviation 0.76 having a variance of 0.59 and a chi-square value 24, while its rank was 1. Furthermore, 15%, 50% and 19% respondents rated the curricula content and structure with respect to technical merit as excellent, good and fair respectively, while 15% regarded it as poor. The null hypothesis was accepted that majority of the respondents rated the existed curricula technically up to the standard. Findings also conclude that curricula should be upgraded from present conditions, making it more practical oriented for students, emphasis on practical nature in relevance to the field experience and more practical and field work was needed. Major drawbacks in the existing agriculture extension curricula were practical work was not up to the mark, there was less field involvement, it was not according to local needs, repetition/overlapping was always there in the curricula. The following recommendations are made on the basis of study findings;

- i. The curricula shall be upgraded from present condition with regular intervals of time by making it according to the international standard and new dynamic changes due to globalization in the world agriculture.
- ii. The curricula shall be made more practical oriented so that the trained human resource will be able to meet the modern requirement of the field.
- iii. There shall be relevancy between the curricula and local needs of the area.

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