TEACHING EXCELLENCE THROUGH THE USE OF INSTRUCTIONAL METHODS IN ADULT AGRICULTURAL PROGRAMMES: A CASE STUDY OF TANDOJAM-SINDH, PAKISTAN

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ABSTRACT

The study was carried out with the objectives to identify the current methods of delivery of agricultural education extension programmes. For the collection of primary data, using simple random sampling, 25 Extension Specialist (ES), 30 Agricultural Professionals (AP) and 5 Landlords-cum-Agriculturists were selected. Data were collected on a semi structured questionnaire. Formal education of Extension Specialists and Agricultural Professions were recorded up to post graduation level. As regards to competency in teaching methods and use of audio-visual aids, it was learnt that Extension Specialist and Agricultural Professionals were more professional in delivery of extension services than an ordinary landlord-cum-agriculturist. However, extension personnel were not fully equipped to use modern technology and strategies to deliver their message effectively. It was, therefore, recommended that a wide variety of learning resources should be used to implement instructions in adult agricultural programmes. The teaching resources included job related tools and equipments, teacher-constructed instruction models, and interactive videos of learning modules.

Key words: Agricultural Extension, Instructional Methods, Extension Programs

INTRODUCTION

Education is a continuous and life long process. It is the most effective tool of creating a highly productive manpower. People without education are at the mercy of those who can use it, what they know to impress and often exploit the ignorant around them.

History of the gone age shows that only those nations who paid attention to improving their quality of education have succeeded in bringing about an overall economic development and poverty alleviation. This is especially so in the case of agricultural education since all efforts to bring about radical improvements in the agricultural sector will depend on the quality and relevance of education imparted to students of agricultural colleges, universities, and adult education centers. Many factors, including the excellence in adult education movement have been cited by agricultural educators as influencing the enrolment in adult agricultural programmes without any quantitative data about the effect of those factors. This research study is the first study on instructional methods used in adult agricultural programme and is designed to identify the factors having an effect and subsequently quantifying the effects of those factors on adult agricultural programmes.

A review of literature suggested that there is a continual need for evaluation of instructional methods and technology in adult education. Brundage (1980) in a study identifies the needs in adult vocational education. The extension professionals believe that for adult education purpose respondents will need a variety of methods to deliver knowledge and skills including demonstrations on the job instructions, audio-visual-aids-assisted instruction, cooperatives learning and lecturing.

Extension agents and other professional people of this field have observed that for better adult education a wide variety of learning resources will be used to implement instruction. These resources included the following items in order of perceived priority: job related tools and equipment, goods and materials, video-tapes, teachers instructional material, text books, slides, etc. (Pucel, 1988). If the foregoing information represents future practice, what is the current educational practice in adult education in agriculture? While there is a general recognition that educational practice is important to the education of adults, few studies have concluded to place emphasis on instructional methods used in adult education in agriculture. Adult education in agriculture needs to determine the profile of their current practice.

Comparison should be made between adult education in agriculture, regarding its methodology and where it should be

especially in view of the results of past studies. Professional and extension educators constantly face the decision of how to design instructions which will best meet the needs of the adult learners.

These decisions include selecting methods and techniques. The selection process requires not only that the extension educators be aware of how to use various techniques under various conditions and what levels of types of information can best be learned using various techniques. However as a result of the above, these questions became increasingly relevant:

1. What perceptions do adult educators and extension educators have regarding principles of teaching/learning?
2. What methods and teaching tools are perceived to be the most appropriate and effective in delivering agriculturally related educational programmes to adults?
3. To what extent are selected methods/teaching tools used in delivering agriculturally related educational programme to adults?

PROBLEM STATEMENT

Agricultural instructors teaching adult education programmes are expert in conveying message to adult learners. But they usually have little preparation in the process of helping adults learn.

The adult learner also faces various problems related to his family at home and his responsibilities in the organizations he works with. Therefore, he always came to the class unprepared and in this regard he is likely to understand 50% of the instructional method used. Hence, the adult learner needs motivation, guidance and counselling, encouragement for him to digest at least 70% of the instructional methods. Perception regarding instructional methods used in adult agricultural educational programmes will be examined in this study and will contribute to the frontier of knowledge about proper use of instructional method for adult learner. In view of the above problems this study is necessary on the basis of the findings and recommendations from this study. It is hoped that policy makers and educational planners will bring some desirable changes in their future programmes.

OBJECTIVES

Overall Objectives

The overall objective of the study was to identify the current method of delivery of agricultural related educational programmes to adults as perceived by agricultural extension professionals and agricultural instructors in Tandojam, Hyderabad district.

Specific Objectives

1. To determine the level of agreement of the respondent groups regarding selected statements on the principles of teaching / learning as they relate to methods, procedures and educational tools used in adult educational programmes in agriculture.
2. To identify the methods, procedures and educational tools used and their frequency of use in delivery of adult educational programmes in agriculture.
3. To determine the perceived effectiveness of the methods of instructions used by adult educators in agriculture and identify the problems and recommend strategies for delivery of instructional materials.

HYPOTHESES

1. Extension specialists have positive perception regarding principles of teaching and learning before than after teaching the course.
2. Adult agricultural students have negative perception on principles of teaching and learning before than after they receive lectures.
3. Use of educational principles in adult teaching programmes is directly related to teaching learning process.
4. There is no relationship between use of instructional methods in adult education programmes and adoption of teaching learning process.

REVIEW OF LITERATURE

Uwakah (1980) found that majority of extension workers considered their training inadequate to perform effectively as adult educators. He further observed that there was a need for more formal and informal training in the area of technical, agriculture

programme and design of instructions, programme evaluation, communication skills and extension / adult education methodology and process.

Brundage (1980) carried out the research on the topic, learning principles and their application to programme planning. He suggested that there is a continual need for evaluation of instructional method and technology in adult education. He further pointed out that better instructional media play a vital role in implementing better teaching / learning among adult agriculture learners.

Pucel (1988) carried out a research study on education for new times, the video-audio cassettes revolution. He reported that most utilized method was lecture discussion. Agricultural extension professionals consider radio programme to be very effective and commented that television broadcasted and satellite programme were being utilized properly. He further suggested that regardless of the media used, presentation style and competence needs to be enhanced.

Rashid (2006:30-45) concluded that the use of instructional media in non formal education is appreciated all over the world. Teaching through instructional method and media is capable of increasing the effectiveness of their teachers' communication skills and hence resulting in effective teaching and learning process. Informal learning opportunities, both modern and traditional should be provided through instructional media so that the total learning continuum is integrated into learner's social and vocational domain of life.

Farah *et. al.*. (2001:32-33) carried out research to investigate the use and availability of instructional technology facilities in secondary schools of Taxila Taluka. The analysis of data revealed non-availability of instructional technology facilities in class rooms. Majority of respondents supported the use of instructional technology in classrooms. Finally, it was recommended that adequate quantity of instructional technology facilities should be provided to all institutions both public and private.

Memon (2008:55-68) has conducted research on experimental situations focusing on instructional formats in order to see the effectiveness of instructional materials and then make recommendations. The findings of the study show that the teaching

method and instructional materials do not conform to the current theories of teaching.

Ahmed (2008:97-107) emphasizes that the events of instruction should be incorporated in the planning, designing and teaching phase of lesson plan. The event instruction should be employed by teachers while planning, designing and teaching. Teachers can get expertise and improve their teaching skills and make their classroom environment conducive for learning.

Nosheen *et. al.* (2009) in their research on instructional technology in teaching biology at secondary school level found that the application of instructional technology as a strategy for teaching of biology was found to be more effective because the instructional technology increased and enhanced the motivation level of students. Students were found to be more attentive because the concepts were explained with the help of concrete examples and instructional technology played a significant role in teaching learning process.

METHODOLOGY

The study was designed to collect descriptive data to identify the instructional methods being used in educational programmes for adult involved in agriculture. The study generally focused on agricultural education programmes and extension education programmes. The major portion of population consisted of 30 agricultural instructors employed by Agricultural Extension Department (Majority of them are graduates of Sindh Agricultural University and defunct Sindh Agricultural College Tandojam) and 35 specialist in agriculture (people from the university and other agricultural professionals from private sector). And 5 from educators cum landlords etc., these individuals were considered as leaders of adult education in agriculture in Tandojam, Hyderabad District province of Sindh. Their input regarding appropriate instructional methods was deemed important in order to improve adult education in agriculture. Given the time and money available with the researcher, it was decided to contact some of those people through mail service and those accessible were contacted personally. Data were partially by self administered mailed questionnaire, sent to a randomly selected group of agricultural

extension personnel and agricultural educators and specialists in agriculture in Tando jam Hyderabad District.

Most of the target population was sampled because of the need for a critical mass from which information could be collected. The survey instrument was first dispatched through mail in the last week of May 2006. During the second week of June, contact with remaining non-respondents was made.

Some of the respondents who were working in Tandojam but residing either in Mirpurkhas, Tando Allahyar, or Hyderabad were contacted through their residential addresses. It was found that during data collection some of the above respondents were either on short or annual leave. A panel of experts made up of extension educators and agricultural education not included in the population reviewed the questionnaire for content, validity, ease of completion and appropriateness.

Likert type of scales was followed for this purpose:

a. For the level of agreement regarding principles of teaching / learning
1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree;

b. For the level of effectiveness of methods / teaching tools
1 = not effective, 2 = of little effectiveness, 3 = somewhat effective, 4 = effective and 5 = very effective;

c. For the extent of use of methods / teaching tools
1= not used, 2 = seldom used, 3 = occasional and 4 = frequently used.

Some demographic characteristics such as age, marital status, level of education, field of specialization, experience in teaching etc of the respondents were collected. The data collected was analyzed using mean and percentages. The reliability of the survey instrument was tested for the entire instrument on the principles of teaching / learning scale and the use and effectiveness of method / teaching tool scale.

RESULTS AND DISCUSSION

Data Analysis

The information have been obtained through questionnaire and personal interview on the demographic factors such as age, marital status, educational level, field of specialization and

experience in-service gained, were collected. The data collected were analyzed and tabulated.

Age Group

Social scientists generally consider demographic study as an important factor in research pertaining to social sciences where humans are involved. It is an old saying that experience which comes through age makes the man perfect, so age is considered a factor which helps gaining experience as it increases. For teaching purpose this factor is always considered. So the age of target population was compiled, tabulated and presented in Table 1.

TABLE-1

DEMOGRAPHIC STUDY REGARDING AGE DISTRIBUTION OF EXTENSION SPECIALISTS AGRICULTURE PROFESSIONALS AND LANDLORD-CUM-AGRICULTURIST STUDIED IN TANDOJAM HYDERABAD DISTRICT DURING THE YEAR 2006.

N = 60

S#	CATEGORY OF ADULT EDUCATORS	AGE GROUP IN YEAR	NUMBER OF RESPONDENTS	%
1	EXTENSION SPECIALIST (ES)	25-30	08	32
		31-50	06	24
		51-ONWARDS	11	44
TOTAL			**25**	**100**
2	AGRICULTURE PROFESSIONALS (AP)	22-32	09	30
		33-50	12	40
		51ONWARDS	09	30
TOTAL			**30**	**100**
3	LANDLORDS-CUM-AGRICULTRISTS	27-37	02	40
		38-50	02	40
		51-ONWARDS	01	20
TOTAL			**05**	**100**
GRAND TOTAL			**60**	**100**

Source: Survey Results 2006.

As the distribution was made from lowest to highest age group, Table 1 reveals that (ES) respondents (24%) were in the age group of 31-50 years.

(ES) respondents belonging to the age group of 25-30 years have 8 respondents and 32%. Respondents in the age group from 51 and above have 44%.

Similarly among the APs 9 respondents (30%) were in the age group of 22-32 years of age, 12 respondents (40%) were in the age group of 33-50 years of age and 9 respondents (30%) were in the age group of 51 years and above.

Material Status

This is the state of human life considered as an important social factor having some manifestations in the social structure of the society. He feels a self responsibility as a member of the society. Unmarried persons being free of home and children liabilities remain mostly optimistic in nature. So they do not perform the required activities of life which they must do systematically. Many of the social scientists therefore consider the bachelor person as leader in adoption of new innovations. The marital status of the sample respondents is presented in table 2.

TABLE-2

DEMOGRAPHIC STUDY REGARDING MARITAL STATUS OF EXTENSION SPECIALISTS AGRICULTURE PROFESSIONAL AND LANDLORD-CUM-AGRICULTURIST DURING THE YEAR 2006

N = 60

S #	CATEGORY OF ADULT EDUCATORS	STATUS OF RESPONDENTS	NUMBER OF RESPONDENTS	%
1	EXTENSION SPECIALISTS (ES)	Married	18	72.00
		Un-married	07	28.00
		Widow	-	-
TOTAL			**25**	**100.00**
2	AGRICULTURE PROFESSIONALS (AP)	Married	15	50.00
		Un-married	05	16.66
		Widow	10	33.33
TOTAL			**30**	**100**
3	LANDLORDS-CUM-AGRICULTRISTS	Married	04	80.00
		Un-married	-	-
		Widow	1	20.00
TOTAL			**05**	**100**
GRAND TOTAL			**60**	**100**

Source:Survey Results 2006.

Table 2 reveals that 18 (72%) ES respondents were married, 07 (28%) were unmarried or only engaged.

Similarly, 5 (16.66%) APs were unmarried and 10 (33.33%) was widow. The landlord-cum-agriculturist (LA) results 04 (80%) were married, none were unmarried and 01 (20%) was widow.

Educational Level

In this study every respondent was educated. Education is usually considered as positively correlated with the adoption of new ideas and practice. Diffusion and adoption of new innovations could only be carried out smoothly by means of education and perception of education. The educational level of selection sample of agricultural educators is given in table 3.

TABLE-3

DEMOGRAPHIC STUDY REGARDING EDUCATIONAL LEVEL OF EXTENSION SPECIALISTS, AGRICULTURE PROFESSIONALS AND LANDLORD-CUM-AGRICULTURIST DURING THE YEAR 2006

N = 60

S#	CATEGORY OF ADULT EDUCATORS	EDUCATIONAL LEVEL	NUMBER OF RESPONDENTS	%
1	EXTENSION SPECIALISTS (ES)	Graduate Agric Post Graduate	20 05	80.00 20.00
TOTAL			**25**	**100.00**
2	AGRICULTURE PROFESSIONALS (AP)	Matric Under-graduate Graduate	12 10 08	40.00 33.33 26.66
TOTAL			**30**	**100**
3	LANDLORDS-CUM-AGRICULTRISTS	Matric Under-graduate Graduate	- 03 02	- 60.00 40.00
TOTAL			**05**	**100**
GRAND TOTAL			**60**	**100**

Source: Survey Results 2006.

Table 3 reveals that 20 (ES) representing 80% respondents were agricultural graduates and were holders of B.Sc Agriculture (Hons) while 5 (ES) 20% were highly qualified holding M.Sc Agriculture. In the second category of adult educators the table reveals that 12 (40%) AP were matriculate; 10 (33.33%) AP were

under-graduate and 8 (26.66%) AP were graduate. Similarly, in the third category of adult educators 3 respondents (LA) representing 60% were under-graduate and 02 respondents (LA) 40 percent were graduate.

Experience In-service Gained

Demographic study regards service experienced as a tool for proper understanding of the job activities and proper adjustment with social circle of life. It is an open fact that service experiences increase not only knowledge but also increase the competencies of a person in the job. The data collected in this regard is tabulated in table – 4

TABLE-4

DEMOGRAPHIC STUDY REGARDING IN-SERVICE TEACHING EXPERIENCE OF EXTENSION SPECIALISTS, AGRICULTURE PROFESSIONALS AND LANDLORD-CUM-AGRICULTURIST DURING THE YEAR 2006

N = 60

S#	CATEGORY OF ADULT EDUCATORS	SERVICE EXPERIENCE	NUMBER OF RESPONDENTS	%
1	EXTENSION SPECIALISTS (ES)	01-15 16-30 31-ONWARDS	10 15 -	40 60 -
TOTAL			**25**	**100.00**
2	AGRICULTURE PROFESSIONALS (AP)	01-10 11-20 21-ONWARDS	12 12 06	40 40 20
TOTAL			**30**	**100**
3	LANDLORDS-CUM-AGRICULTRISTS	01-18 09-18 19-ONWARDS	02 02 01	40 40 20
TOTAL			**05**	**100**
GRAND TOTAL			**60**	**100**

Source: Survey Results 2006.

Table 4 reveals that in-service experience of the adult agricultural educators in various length of service time and size, the (ES) has 10 respondents representing 40% having 01-15 years

of in-service experience, 15 respondents of (ES) making 60% having 16-30 years of in-service experience.

The second category of agricultural adult educators were agricultural professionals (AP) 12 respondents representing 40% having service experience of 01-10 years, 12 respondents having 11-20 years of service experience and only 6 (AP) representing 20% were having experience of 21 years.

The third category of landlord-cum-agriculturists (LA) respondents representing 40% was having service experience among 01-08. Another 02 (LA) representing 40% were also having service experience among 09-18. Only 1 (LA) 20% was having service experience 19 onwards.

PRINCIPLES OF TEACHING / LEARNING

The research conducted to see the perception regarding instructional methods used in adult agricultural programme; the three categories of principles were used. (1) Perception regarding principles of teaching / learning. (2) Use and effectiveness of methods / teaching tools and (3) the biographical information.

TALE-5

TOTAL USE OF RESPONDENTS THAT AGREE AN DID NOT AGREE WITH PRINCIPLES OF TEACHING/LEARNING AS PERCEIVED BY EXTENSION SPECIALISTS, AGRICULTURAL PROFESSIONALS STUDIED IN TANDOJAM HYDERABAD DISTRICT DURING YEAR 2006

S#	PRINCIPLES	AGRICULTURAL PROFESSIONALS (30)	EXTENSION SPECIALISTS (30)
1	Use of individualized instructions to help adult solving problems	22	18
2	Use of farm agro business instructions	17	12
3	Identify and use educational principles	30	27
4	Use variety of instructional methods	30	30
5	Utilize non formal teaching methods & techniques	20	26
6	Use problem solving methods which involves mental activity	12	17
7	Develop and use a definite & specific interest approach	21	28
8	Emphasize problem solving which involve the physical activity	30	26
9	Involve participants in preparation of instructional learning materials	30	30
10	Preparation of instructional plans to provide desirable experiences	6	8
11	Identify and utilize selected models of learning	20	29
12	Design of plan to evaluate the teaching process	30	30
13	Apply a variety of methods and techniques	30	27
14	Utilize group instructions	3	10
15	Design a plan to evaluate the product of teaching learning	20	28

Source: Survey Results 2006.

Table 5 reveals that the respondents indicated that they disagreed with items 2,7,10 and 14. All the above 4 items shows less than 18 respondents out of 30, this implies that they did not agree with the principles. The selected three categories of adult agricultural educators were also asked to indicate the level of effectiveness of the methods and teaching tools. The results of the respondents were presented in table 6.

TALE-6

LEVEL OF EFFECTIVENESS OF TEACHING METHODS/ TOOLS AS PERCEIVED BY THREE CATEGORIES OF ADULT EDUCATORS, EXTENSION SPECIALISTS, AGRICULTURAL PROFESSIONALS AND LANDLORD-CUM-AGRICULTURISTS STUDIED IN TANDOJAM HYDERAAD DISTRICT DURING THE YEAR 2006

S#	Teaching method / tools	ES (20)	AP (30)	LA (10)
A	Lecture and discussions	18	24	7
B	Problem solving	20	28	9
C	Individualized instruction	15	20	8
D	Use of overhead projector during teaching	20	30	10
E	Use of slides	20	28	9
F	Group discussions	20	30	10
G	Use of chalk board	18	22	6
H	Questions and answer at the end of teaching	20	30	10
I	Use of video-tape audio tape and television programme	20	30	10

Source:Survey Results 2006.

LEVEL OF EFFECTIVENESS

The findings further indicated that extension specialist (ES) and agricultural professional (AP) differed significantly concerning the extent of use of selected instructional methods and tools.

The extension specialists (ES) instructors were interested with group discussions, comparing role playing, brain-storming and debating. They said these were more effective method of teaching for them. However, agricultural professionals and

landlord-cum-agricultural professionals indicated that the higher levels of use of perceived effectiveness were radio programmes and symposiums are helpful in teaching.

COMPETENCY OF THE QUESTIONNAIRE

The researcher observed that many of the respondents have made strong comments on the competency of questionnaire. They indicated that extension specialists in agriculture are recognizing a need to develop competence in various methods and tools of instructions. Knowledge in the use of these various methods will enable extension specialists to enhance their presentations and increase audience participation. One respondent indicated that this need has developed because of the increased use of satellite linkages and television and videotape presentations. Technology has created a need to use a variety of instructional methods and use them in innovative ways.

Another interesting study regarding a comparison of the level of agreement regarding principles of teaching/learning as perceived by two adult agricultural educators were conducted in order to see how these principles and how far they are successful in doing so. Though, it was observed by the researcher that they were not qualified teachers but were doing this job on the basis of their experience and knowledge which they gained through life and in their school / college and university times. Thus the data regarding above indicated principles is shown in Table 5.

The data presented in table 5 indicates that two groups of agricultural educators and the agricultural extension specialists differed significantly in their level of agreement for the principles of teaching/learning process, especially in the following categories:

a. Use problem solving which involves mental activity;
b. Emphasize problem solving situation which involves physical activity;
c. Prepare instructional plans to provide desirable experience; and
d. Identify and utilize selected models of teaching.

Agricultural professionals represented higher level of agreement with each of the above principles than did agricultural extension specialists.

HYPOTHESIS NO.1

Table 5 and Table 6 gave answer to this hypothesis. The results of the respondents regarding principles of teaching and learning are in agreement and confirm its positively.

HYPOTHESIS NO.2

Most of the students are ignorant of the curriculum and content of adult agricultural program; for this reason their perception regarding principles of teaching and learning is negative. Students need to be given curriculum of their program before beginning of the academic year. It is also very important for the authorities of an institution to organize an orientation for students at least for 3 or 4 days before the commencement of academic year. As for adult education students, who probably have to go to the village for their practical internship, it is important for them to get acquainted with village to which they are posted. The philosophy behind extension organization is knowledge and skill in applying principles of teaching and learning – the principles of extension education, basic understanding of the organizational structure in which they will work.

HYPOSHTEIS NO.3

Table 7 gives answer to hypothesis 3.

TABLE-7

OBSERVED FREQUENCY ABOUT THE USE OF EDUCATIONAL PRINCIPLES AND ADOPTION OF TEACHING LEARNING PROCESS STUDIED IN TANDOJAM HYDERABAD DISTRICT IN THE YEAR 2006

Constraints	Observations		Total
	Effective	Non effective	
Use of educational principles	36	10	46
Non use of educational principles	9	5	14
Total	**45**	**15**	**60**

Source: Survey Results 2006.

Table 7 reveals that the use of educational principles and tested factor is therefore not independent, but associated with each other in adult agricultural programs.

HYPOTHESIS NO 4

Table 8 gives the answer to this hypothesis.

TABLE - 8

OBSERVED FREQUENCIES ABOUT THE USE OF INSTRUCTIONAL METHODS AND USE OF TESTED FACTORS IN ADULT EDUCATION PROGRAMMES IN TANDOJAM HYDERABAD DISTRICT IN THE YEAR 2006

Activity	Observations		Total
	Effective	Non effective	
Use variety of instructional methods	28	19	47
Non use of variety of instructional methods	10	03	13
Total	**38**	**22**	**60**

Source: Survey Results 2006.

Table 8 reveals that use of variety of instructional methods in adult educational programs are therefore not independent but associated with each other. Thus it may be concluded that the use of variety of instructional methods about the tested factor hampers the adult educational programs in Tando Jam Hyderabad District during the year 2006.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The philosophy of adult agricultural programs is based on the principles of helping people through education not only to understand their resources but also to make full use of them for development. By utilizing these resources they can lead a satisfactory life. The development of human resources through adult education offers not only one of the greatest possibilities for economic development but is a prerequisite to the application of the technology required to increase agricultural productivity.

The rationale for conducting research studies related to instructional methods in adult education in agriculture become clear when we consider that most instructors in adult education programs are expert in the context of what they teach but usually have little preparation in the process of helping adults learn.

Therefore the purpose of the study was to identify the current methods of delivery of agricultural related educational

programmes to adults as perceived by agricultural extension professionals and agricultural instructors in Tando Jam Hyderabad District.

The demographic data reveals that majority of ES belongs to age group 51-onwards (i.e. 44%). In secondary category of AP greater number (40%) belongs to 33-50 years age group, while LAs have two categories with 40% in the age group of 27-37 and 40% in the age group of 38-50 years.

As regards to the marital status it was found that 72% of ES were married, 50% AP were married and LA 80% married.

Looking at educational level, it was found that 20% ES were postgraduate, 33.33% of AP was educated up to university level and 60% LA were educated up to college level. As regards to experience in service it was learnt that 40% ES had 1-15 years, AP had 40% also and LA had 20% years of experience.

As regards to competency in teaching methods and use of audio-visual aids, it was learnt that ES and AP indicate a higher level of regards for the principles of teaching and learning than landlords-cum-agriculturists. Although these respondents placed a very high priority on use of a variety of instructional methods they tended to rely on one method.

The most utilized method of teaching reported was lecture and discussions. Agricultural extension specialist considers radio programs to be very effective and agricultural professionals consider television broadcast and satellite programs. There was a divergent opinion between the two professionals in this regard. In the principles of teaching and learning, agricultural professionals have fully agreed with 6 items and extension specialists with 4 items only. In respect of level of effectiveness ES agreed with 6 items recorded by 20 respondents, LA 4 items by 10 respondents. Table 7 reveals that the use of educational principles and tested factors are, therefore, not independent of each other but associated with each other in adult agricultural programs; and finally Table 8 reveals that the uses of variety of instructional methods in adult educational programs are therefore not independent but associated with each other.

It is necessary that a variety of methods will be used in future to deliver knowledge and practical skills including demonstration, on the job instruction. It is also important that a wide variety of

learning resources should be used to implement instructions. These resources include the following items in order of perceived priority, job related tools and equipments, teacher constructed instruction models, interactive video learning modules etc. In our conclusion, agricultural professionals and landlord-cum-agricultural educators and extension specialist believe that competence in various instructional methods for adults is necessary to effectively deliver the transfer of technology to agriculture. However, many of these agricultural educators indicated that they are not fully equipped to use all the technology and strategies though they believe them to be effective. All the three categories of professionals agreed on the need for enhancing the use of appropriate and effective instructional methods and tools in conducting adult educational programs in agriculture.

RECOMMENDATIONS

The following recommendations will assist extension specialists in delivering the instructional methods in adult agricultural programs:

1. Before the actual demonstration began the demonstrator should explain to the audience in a simple and precise manner the procedure and purpose of the demonstration.

2. The audience needs to know why they are going to attend this particular activity and why it is important for them to learn the new technique.

3. The audience should be given full opportunity to participate in all stages of the demonstration; this will improve their skills and enhance their interest in the innovations.

4. When a demonstration is over, it should be followed by a brief question and answer session because some points will need to be clarified.

5. The results of the demonstration should be carefully compared with the old technique, if necessary. The data should be recorded and maintained for future use.

Recommendations regarding strengthening of agricultural extension and education in Pakistan:

1. Technology generation transfer and adoption should be considered as an important function of well integrated development.

2. Agricultural extension should include services and education to the farmers besides quality control and regulatory functions over the supply of agricultural inputs.

3. Extension agent /specialist should be provided with adequate opportunities for proper education training and professional development.

4. It is important to conduct periodic scientific orientation of extension workers to keep them abreast of current innovations and development in agriculture.

5. Agricultural extension workers should be provided with adequate mobility to cover the remote areas.

6. Agricultural extension should be considered a dignified technical service and better possibilities for career advancement should also be ensured in order to attract competent persons.

7. Opportunities for good career development should be provided for young energetic and intelligent extension agents.

8. Radio and TV should be used vigorously to disseminate scientific knowledge and technical information. For this purpose a special unit should be created in agriculture department.

9. Development of women in agriculture is very crucial. There is a need to improve their efficiency, skills and attitudes. For this purpose government should establish a women extension service in rural areas of a province.

10. Since the present study is limited to Tando Jam Hyderabad district, further studies of this nature should be conducted elsewhere in other provinces of Pakistan.

11. Teaching-learning facilities and materials may have to be redesigned in such a way that they will enhance teaching-learning process by using local materials and learning resources as much as possible. In this connection it is necessary for governments to provide adult education centers with the tools and materials needed in the preparation of instructional devices.

12. Systemic training programs should be remounted to import skills amongst various teachers of adult agricultural programs for local development and learning resources.

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