

Radio as an Educational Media: Impact on Agricultural Development

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ABSTRACT

The radio is a powerful communication tool. It has proved to be the most effective media in promoting agriculture and development in rural areas, particularly as a tool for the delivery of quick information. A quasi-experimental study was designed to determine the effectiveness of the radio as an educational media to transfer agricultural information to farmers. A total of 161 subjects were selected randomly from Fars province, Iran. After determining educational goals of study, a questionnaire was prepared for the pre- and post-tests. Based on educational content, a radio programme was produced on fighting against agricultural pests, and the correct method of using agricultural poisons. Participants responded to the pre-test one week before broadcasting the radio programme through the provincial broadcast centre of Fars. The post-test was conducted after broadcasting the radio programme. The results indicate that the majority of the respondents were male (91.3%) and married (81%). About 14.9% of the respondents were illiterate with most being between 41 – 50 years old (28.9%); 68.3% believed that producing suitable agricultural programmes in the language and culture of the region could be very effective. The findings of the study also show that educational intervention through radio resulted in significant knowledge enhancement (3.99 to 6.41 out of 10). These results clearly indicate the effective role of radio in improving awareness of farmers ($p < 0.001$). Radio remains a vital part of development and farming systems; agricultural education intervention programmes will be more fruitful if they are conveyed through the radio. Such programmes should result in heightened farmer awareness.

Keywords: Media, radio, education, agriculture

1. INTRODUCTION

We are living in a world that is saturated by mass media with our environment brimming with data and information (Hutchings and Matthews, 2008). In recent decades, the widespread use of the mass media has resulted in heightening the level of public knowledge in different fields (Buren, 2000). Among the diverse mass media, radio and television, due to their wide and vast range of viewers, have had an outstanding position particularly with regard to informal teaching, and are considered as the best cultural and educational media (Tancard and Verner, 2005).

Many researchers and educators have tested the understanding of farmers and other clients on the delivery of educational information (Suvedi *et al.*, 1999; Trede and Whitaker,

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1998; Caldwell and Richardson, 1995; Laughlin and Schmidt, 1995; Gamon *et al.*, 1992). The outcomes of their studies indicate that different media and methods are used by extension educators to communicate new and emerging technologies to farmers.

For extension educators and communicators, identifying the band and examining the usefulness of each delivery method is an important issue. This kind of knowledge will not only help to identify the information needs of farmers, but also assist in developing educational resources in order to communicate effectively with farmers and other clients (Rama *et al.*, 2003).

In rural development, information and knowledge are two significant factors. Local knowledge provides different ideas for agricultural as well as other changes. The information brought to the area contains fresh ideas, and introduces new opportunities. Knowledge obtained from a specific research can motivate thinking and practices. All the five external and one internal catalyst of social change, which were identified by Figueroa *et al.* (2002) have the stimulus of new information or knowledge at their core. Neither knowledge is being “transferred” to potential users, nor are the outputs of specific research being “taken up” by farmers and other land managers (Garforth and Usher, 1997; Garforth *et al.*, 2003). Among the mass media, informal education, radio and television have a specific value. Due to their vast use, the media are among the best educational and cultural instruments. Based on their educational requirements different countries can take advantage of radio and television in terms of informal education. On the other hand, the lack of specific research in this field as well as the obligation and commitment of Iran to the World Session of Information Society (WSIS, 2005), which aims at applying information and communication technology in all parts and areas including villages and agricultural affairs, makes conducting this study inevitable.

Nowadays, access to education, information, knowledge, and communication plays a vital role in the individual and social life as well as human development and inclination towards growth. As a pre-requisite of knowledge, information, recognition and awareness are among the most efficient factors in reaching human development (WSIS, 2005).

Ekoja (2003) has mentioned that the information sources in different aspects of agriculture for the farmers are radio and television, propaganda publication, daily farm newspapers, agriculture exhibitions, practical education, and consultation services, respectively. Jenkins and his colleagues (2003) have conducted a study about the information technology used by the farmers of North California. Based on this research, newsletters were found to be the most important way of collecting information about major issues in agriculture.

In Nigeria, the studies conducted by Arokoyo (2003) showed that although video, radio, and television are the major sources of information for the farmers of this country, in the case of establishing the foundations, it is also possible to use other developed equipment.

Canada as an advanced country, considers radio as a noticeable medium in parallel with its technological improvements in the field of agriculture. The production of radio programmes on agriculture has been the prime concern of Canadian radio and television organization (CBS) for about half a century (Khatoonabadi, 1995).

Those village dwellers in USA who have little or no participation in social meetings and rarely use mass media, will meet their information needs through radio programmes (Kelsey and Hearne, 1955).

In Sri Lanka, under the supervision of a common programme between UNESCO and the government, radio is used as a link between people and the Internet. In this activity, in addition to gaining information from various sources, such information is broadcasted for those who do not know English. They provide the information requested by people and deliver to them. There are also rural information banks that provide requested information to those who need them (Emadi, 2003).

Radio programmes include a wide diversity of miscellaneous programmes. One of the most popular programmes is “At the Service of the Fatherland” embodying music, news and debates on rural issues (Khatoonabadi, 1995).

Radio is a powerful communication tool (Chapman *et al.*, 2003) that has also proved to be the most effective media in promoting agriculture and development in rural areas (Nakabugu, 2001). Radio and television are the most effective tools in communication for the support of development (Hussain, 1997). Radio is acknowledged as the most important medium for communicating with the rural populations of developing countries (FAO, 2001). The purpose of the current study is to determine the role of radio on the enhancement of farmers’ agricultural knowledge.

2. METHODOLOGY

The present research, a quasi-experimental study, aims to determine the role of radio in enhancing farmers’ agricultural knowledge. The study population constituted all residents of Fars province in Iran; from this population, 161 people were selected and scrutinised randomly. Subsequently, the sample for this study (farmers of the region) were selected based on present statistics available in agricultural organisations. Farmers were selected randomly based on the annual census taken by the agricultural organisation in the province, and their exact addresses were obtained from the updated files maintained in these organisations. Three towns were chosen randomly from the provinces, and three villages were selected randomly from each town.

In this research, the first step was identifying the educational ‘media’. Having done the indispensable coordination with (Islamic Republic of Iran’s Broadcasting)(IRIB), the structure of the radio programme was determined, and all engaged agents were selected. Various items were employed in this productive media (radio) to make the programme more appealing and attractive. They include: performer, experts, reports, educational rhythmic songs and short drama performances. The content of the programme was written by an expert and experienced writer, and in accordance to the taste and culture of the farmers. The subject of this programme was fighting against agricultural pests and teaching farmers how to use the correct form of agricultural poisons. Such programmes have the educational priority of the region, and are chosen based on prior studies done by the agricultural organisations. The educational content of the radio program was based on the questions posed in the questionnaire. The researcher, a senior producer of IRIB., provided 20 minutes

for the educational radio programme. The performer in the programme was chosen among the best local experts speaking the native mother tongue.

Having broadcast the radio programme, the researcher visited the above-mentioned villages with the purpose of interviewing and completing the pre-test form. To ensure that the farmers have seen the programme, a brochure was provided and given to them after the pre-test in which the exact time of the programme (i.e. Khoda Ghowat Keshavarz) was mentioned. This was envisaged to assist the researchers to collect more effective and accurate responses.

One week after the completion of the pre-test, the radio programme on fighting agricultural pests was broadcasted through the local radio centre of the Fars province. It was shown at 18:30, a time assumed to be the most appropriate for people to listen to the radio.

One week after the broadcast of the Radio programme, the post-test was completed. SPSS software and statistical tests of χ^2 , T-test, and ANOVA were used for the analysis and interpretation of the information.

3. RESULTS

The population of the study comprised 161 farmers from Fars province. The sample constituted 91.3% men and 8.7% women. Eighty-one percent of the farmers in this study were married; 14.9% were illiterate and most were between 41–50 years old (28.9%). Most of the respondents had 6–10 members in their family (59.63%). Respondents (68.3%) believed that producing suitable agricultural programmes in accordance with the language and culture of the region could be very effective. The results of the study showed that producing and broadcasting local agricultural programmes is most suitable. The use of the local language in this programme was most effective in deciding the degree of satisfaction with this programme. One week after the programme was broadcast, a post-test was carried out. It turned out that 83.23% (134 farmers) of the respondents had the opportunity to listen the programme. Those who were not able to do so for any reason were excluded from the sample (16.77%).

Table 1 illustrates level of knowledge of farmers with regard to 10 questions before and after intervention which showed that for all questions, level of their knowledge had increased significantly ($P < 0.05$). The maximum and minimum rise in farmers' knowledge related to questions 3 and 8 respectively.

The results showed that the number of correct answers had increased during the post-test. The average score increased from 3.99 during the pre-test to 6.41 during the post-test for the radio programme (Table 2).

Partial correlation was used to explore the relationship between farmers' knowledge level and age, marital status, family numbers, educational level and monthly income. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity.

4. DISCUSSION

Sharma (2008) states that radio is the most widespread, trusted media. It is a unique media form that can be tuned to user experience. One of the strengths of the radio is its low cost

Table 1. Frequency of correct responses to pre- and post-tests among farmers by questions

Questioner	Correct Response				χ^2	p
	Pre-test		Post-test			
	F	%	F	%		
Q1	36	26.9	93	69.4	17.94	0.001***
Q2	34	25.4	82	61.29	28.89	0.001***
Q3	40	29.9	92	68.7	3.41	0.006**
Q4	63	47	101	75.4	29.42	0.001***
Q5	70	52.2	98	73.1	48.26	0.001***
Q6	58	43.3	94	70.1	43.51	0.001***
Q7	65	48.5	77	57.5	33.88	0.001***
Q8	72	53.7	76	56.7	28.11	0.001***
Q9	58	43.3	88	65.7	16.09	0.001***
Q10	39	29.1	59	44	36.76	0.001***

* Indicates statistical significance at $p < 0.05$

** Indicates statistical significance at $p < 0.01$

*** Indicates statistical significance at $p < 0.001$

Table 2. Mean scores of farmers' knowledge by pre-test and post-test

Number of participants	Pre-test		Post-test		t	p
	Mean	SD	Mean	SD		
134	3.99	1.94	6.41	1.50	19.53	0.001***

*** Indicates statistical significance at $p < 0.001$

and its ability to be present and used everywhere. But one of the weaknesses of traditional analogue radio is that the programmes are tied to a time bound flow on a limited number of frequencies and that the programmes are not available when it suits the listeners.

The first research question examined the extent in rise in respondents' knowledge in response to the broadcasted radio programme. The findings of the study showed that educational intervention through radio caused significant knowledge enhancement from 3.99 to 6.41 of a total 10, clearly indicating the effective role of radio to improve awareness of farmers. This result is in agreement with that of Fazzari (2002) who reported efficacy of radio to gain political knowledge through radio. Chapman *et al.* (2003) in his study about role of radio in agricultural extension in Ghana reported that 83% of respondents believed that the messages of radio were true affirmatively, while 17% would not answer the question.

In the field of formal education, radio has been used extensively in developing countries. Nwaerondu and Thompson (1987) reported the use of educational radio in developing

countries and cited some notable applications: Teaching mathematics to school children in Thailand (Galda and Searle, 1984), and for teacher training and other curricula (Faulder, 1984); literacy training and other programmes in Mexico (Ginsburg and Arias-Goding, 1984); health and education in Nicaragua (Cooke and Romweber, 1977); changes in farming practices and improving production in Guatemala (Ray, 1978); nutrition education in the Philippines and Indonesia (Manoff, 1985); and family planning and health in Sri Lanka (Academy for Educational Development, 1980). In developing countries such as Pakistan (Abbas *et al.*, 2003) and Africa (Hambly, 2007), radio is considered as an informal educational tool which is vital for development and farming systems. The thinking focuses on a linear approach to scientific developing technologies and government extension agents disseminating them as packages. In addition, farmers adopt and neglect their own knowledge and role in developing and adapting technology. It is a role which is often embedded in scientific organisations.

5. CONCLUSION

Mass media offers effective channels for communicating agricultural messages, which can increase knowledge and influence behaviour of the intended audience. Broadcast media have the ability to disseminate information to large audiences efficiently; the radio can be a particularly important channel. Since the radio plays a more important role in public education, producers should be familiar with the latest and newest programme structures to be able to meet the needs of people by employing appealing methods. Based on the research findings, the farmer's literacy level plays an influential role in the extent of his/her use of available media. The relevant institutes and organisations should provide appropriate opportunities for the development of formal and informal education in a move to decrease illiteracy levels in rural communities.

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