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Broadcast and Computer-based
Radio

The Use of Educational Radio in Developing Countries: Lessons from the Past

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Context:
This article describes a variety of uses of radio in education projects in developing countries. Although slightly dated, it gives the reader an idea of the types of projects carried out in the past.

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Introduction

Radio has been used extensively as an educational medium in developing countries. Published reports confirm that it has supported educational programs in a wide range of subject areas and in many different countries. Consider the following list of examples (which is by no means exhaustive). Educational radio has been utilized in:

- Thailand, to teach mathematics to school children (Galda, 1984), and for teacher training and other curricula (Faulder, 1984).
- India, for rural development (Long, 1984).

- Swaziland, for public health purposes (Byram & Kidd, 1983).
- Mali, for literacy training (Ouane, 1982).
- Columbia, for various programs (Muhlmann de Masoner, Masoner, & Bernal, 1982).
- Mexico, for literacy training and other programs (Ginsburg & Arias-Goding, 1984).
- Nigeria, for management courses for the agriculture sector (Shears, 1984).
- Kenya, in support of correspondence courses (Kinyanjui, 1973).
- Nicaragua, for health education (Cooke & Romweber, 1977).
- The Phillipines, for nutrition education (Cooke & Romweber, 1977).
- Guatemala, in order to promote changes in farming practices and to improve production (Ray, 1978).
- Sri Lanka, for family planning and health (Academy for Educational Development, 1980).
- Trinidad and Tobago, to promote knowledge of breastfeeding (Gueri, Jutsun, & White, 1978).
- South Korea, in support of family planning (Park, 1967).
- Botswana, for civics education (Byram, Kaute, & Matenge, 1980).
- The Dominion Republic, in support of primary education (White, 1976).
- Paraguay, to offer primary school instruction (Academy for Educational Development, 1979).

Educational radio has been employed within a wide variety of instructional design contexts. In some cases it is supported by the use of printed materials, by local discussion groups, and by regional study centres. It is sometimes designed to permit and encourage listener reaction and comment. Indeed, in some cases, there is provision for the audience to raise questions and to receive feedback. The purpose of the present paper is to explore some of the various instructional design formats in which educational radio has been employed. In addition, the paper reviews some of the evaluative studies and the recommended practices regarding educational radio in developing countries which emerge from this literature.

Farm Radio Forum

One of the most dominant and widespread examples of the use of educational radio is known as "Farm Radio Forum." It was started in Canada in 1941 as a radio discussion program and served as a model which was adopted subsequently in a number of developing countries. After ten years, its sponsors, the Canadian Broadcasting Corporation (CBC), the Canadian Federation of Agriculture (CFA), and the Canadian Association for Adult Education (CAAE), invited UNESCO to cooperate in carrying out an evaluation of the program and its effectiveness as an instrument of adult education (Abell, 1968; Coleman & Opoku, 1968; Mathur & Neurath, 1959; Nicol, Shea, Simmens, & Sim, 1954). The lessons learned from Canada such as the use of forums, multi-media, printed

materials, two-way communication and various production techniques (drama, interview, panel discussion) were then introduced in India early in 1956, and in Ghana in 1964, with the initiative and sponsorship of UNESCO. The radio programs for rural forums have been concerned with the problems of agriculture, rural development, rural education, innovations, self-government, and literacy. Such forums have now been introduced in many developing countries. By 1968, a total of about 15,000 was reported (Nyirenda, 1981; Waniewicz, 1972).

In a study sponsored by UNESCO, Paul Neurath (1959, 1960) studied the effects of a Farm Radio Forum project at Poona, India. He compared 145 forum villages with non-forum villages. The forum lasted for ten weeks with a total of twenty programs. Each forum had twenty members who came together twice a week to listen to a thirty-minute program on subjects such as agriculture, health, and literacy. Forum members were interviewed before and after the project as were samples of twenty adults from each of the control villages. Each forum was visited and observed four times during the project. It was found that forum members learned much more about the topics under discussion than did adults in villages without forums. According to Neurath (1959):

Radio farm forum as an agent for transmission of knowledge has proved to be a success beyond expectation. Increase in knowledge in the forum villages between pre- and post-broadcasts was spectacular, whereas in the non-forum villages it was negligible. What little gain there was occurred mostly in the non-forum villages with radio. (p. 105)

Abell (1968) conducted research into the effect of group listening to rural radio forums in Ghana. Like Neurath's study, Abell's research was financed by UNESCO. Abell selected the "Eastern Region of Ghana" for the experiment. Sixty experimental forums were organized in forty villages, while forty more villages were designated as controls. Twenty programs were broadcast once a week from December, 1964 to April, 1965 exclusively. Five programs dealt directly with agricultural problems while the rest took up the problems of family living, national policy, and relationships with government. Each forum met on the day of the broadcast and exchanged ideas on the topic, then listened to the broadcast and discussed it. After the last session, forum members as well as the control group (non-forum members) were interviewed on what they had learned from the broadcasts. When the results were compared they revealed that forum members learned more than the non-forum members.

Additionally, Jain (1969) conducted a study on the effect of rural radio forums. He selected a number of villages in one area of India and formed in each one a volunteer group of adult farmers. All the groups listened to a twenty-five minute recorded broadcast on a topic of current rural interest; some followed it up with group discussion or decision making or both. Others were only expected to listen and take no further action. Tests were conducted after the broadcasts. The results showed that group listening followed by group discussion was more

influential in changing beliefs and attitudes towards innovation than was group listening without discussion. Group decision making was found to be an important factor as well. It enabled farmers to approach their problems in a more informed fashion and to work together towards the solutions.

In 1956, the "Maharashtra Radio Forum" project was carried out in India. The purpose was to determine if radio forums would work in India with rural audiences who were largely illiterate, rarely exposed to radio, and unused to organized group discussion. The objectives of the project were to stimulate discussion, increase participants' knowledge and, if possible, have the activities result in decisions and actions to improve village life (Bordenave, 1977; Mathur & Neurath, 1959; Sitaram, 1969). Interviewing was done before, during, and after the broadcasts. The evaluation showed that some action was taken by village groups, but that many group action decisions were never implemented because the necessary materials were not available. For example, a decision was made to use fertilizers on rice crops to increase productivity but, unfortunately, fertilizer was not available. From the evaluation results, it was concluded that forum members learned a great deal more than non-forum members. In amount of knowledge gained, illiterates did as well as literates.

In tile Benin Republic, radio was used to educate rural peasant farmers in the 1960s. The process involved the organization of small listening groups, called "Radio Clubs," formation of national and departmental committees, use of village chiefs as presidents of the radio clubs, and the use of animators as group leaders. Group discussions were carried out after listening to the broadcasts, and the animators provided reports on group discussions. After one-and-a-half years of experimentation, an investigation was carried out to collect the reactions of the peasant farmers. As a result of the investigation, the administration of the Agricultural Radio programs and organization of the radio clubs was reformed. A national committee was formed to assume the responsibility of planning the agricultural broadcasts calendar. Topics on rural life and on general motivation were developed for the programs. Messages from the radio clubs, and questions and answers of interest to the development of agriculture, al l formed important themes for the radio programs. Department committees were also set up to make recommendations to the national committee on topics and subjects for the radio broadcasts. A year later, a national seminar was organized to evaluate the achievements of the Agricultural Radio. "About 60 participants, mostly district heads and a few operational heads, attended the seminar" (Anyanwu, 1978, p. 1). The results of the evaluation revealed that rural radio is an effective instrument of information and education among the rural peasants. Anyanwu concluded that:

Through education from the radio, the peasants have grown to understand how to work better, even with the use of new implements which also require new techniques for the development of agriculture. The success achieved in this direction has demonstrated that through collective listening, discussion, and the

use of audio-visual aids, the radio can contribute substantially to the process of transformation of agricultural traditions, as well as some social and economic attitudes in general (p. 15-16).

Punasiri and Griffin (1976) summarized the Farm Radio Forum Pilot project of Thailand. The purpose of the project was to strengthen existing agricultural service and to obtain qualitative data on the value of radio farm forums in facilitating communication between the farmer audience and the extension service. The programs included interviews with specialists, discussions from listening groups, announcements, and answering questions from the groups. The evaluation was designed as an integral part of the project activities. It used a number of methods to collect data, namely "weekly Radio Farm Forum reports and attendance records; follow-up visits to villages; observation notes; surveys of Radio Farm Forum leaders and members; survey of Provincial Level committee members; post-project seminar with group leaders and final presentation to DOAE (Department of Agricultural Extension)" (p. 6). The evaluation found that the two-way flow of information between the farmer and the extension workers had improved . The frequency of farmers' contact with extension agents increased as farmers felt that the agents were trying to provide information directly relevant to their perceived needs. Retention of information and overall learning were greatly improved because of high interest in the content and the reinforcement of messages by various communication channels such as radio, literature, and field visits by extension agents and technicians.

Finally, the extension staff and the farmer audience were found to be extremely motivated by the Radio Farm Forum activity.

Education and Communication

Evaluation of communication programs, projects, and experiments have repeatedly shown that radio can teach; it can present new concepts and information (Gaida & Searle, 1980; White, 1976, 1977; Leslie, 1978; Jamison & McAnany, 1978; Byram, Kaute, & Matenge, 1980; Hall & Dodds, 1977; McAnany, 1976). In this regard, Sweeney and Parlato (1982, p. 13) concluded that "...radio plays an effective educational role both as the sole medium or in conjunction with print and group support."

For example, in a project for teaching mathematics by radio to school children in primary grades in Nicaragua, students who were taught through radio lessons achieved significantly higher scores in the final evaluation than those taught through regular, face-to-face, classroom instruction. Rural students, tested against rural control groups, benefited more than urban students tested against urban control groups (Gaida & Searle, 1980). The project evaluators hypothesized that radio lessons were particularly effective in raising the level of knowledge of those who knew least, which in this case were the rural students.

Using a format which combines entertainment, humor, and instruction, Kenya's nationwide weekly radio program, "Giving Birth and Caring for Your Children," was measured effective in educating the audience about modem child care practices (Hostetler, 1976; Jamison & McAnany, 1978). The results indicated that more than one-half of those interviewed listened for the educational content, while more than one-third listened for the entertainment. The survey showed general recognition of the major theme (child care) and a high recall on topics covered by the program.

A civic education project was organized in Botswana by a community college to provide villagers with basic information about the government and its procedures about citizens' rights and responsibilities. The radio programs were heard and discussed by listening groups. Pre- and post-broadcast surveys revealed a definite increase in people's knowledge and awareness of government and of ways people can participate in development processes (Byram, Kaute & Matenge, 1980).

Dialogue and Innovation

The potential of radio to motivate listeners to take action, modify behaviour, and undertake activities is evident in the literature reviewed thus far. In some cases, radio has been used effectively to advise populations of new government policies and to encourage discussion, feedback, and eventual support for new measures. Radio has also been used to promote community development, innovation, and other programs in which self-help and community participation are essential (Bryam, Kaute & Matenge, 1980; Cassirer, 1977; Punasiri & Griffin, 1976). There is some evidence to suggest that radio alone can bring about results (Ray, 1978; Cooke & Romweber, 1977). Other reports have examined the results of radio when used in conjuntion with some form of interpersonal support such as discussion/study groups, printed materials, or contact with extension workers (Cerqueira, Casanueva, Ferrer, Fontanot, Chavey, & Flores, 1979; Bordenave, 1977), and found them to be very efficient and effective.

While most communication and education experts agree that radio can play an important role in inducing change, the ability to bring about such change using radio alone remains controversial. Sweeney and Parlato (1982, p. 16) state that "...established theories of communication hold that human interaction is necessary at some point in getting individuals to adopt innovations."

It should be noted that most of the evaluation studies reporting change in behaviour were based on self-reported action by those interviewed, rather than by independent observation. Accordingly, the potential of radio has been particularly difficult to ascertain on this issue. Nonetheless, there is some evidence about change and actions produced by radio in developing countries. For example, a five-year "Basic Village Education" project was carried out in two geographic areas of Guatemala in 1973. The purpose of the project was to

change farming practices and improve production through a constant flow of information (Ray, 1978). Reviewing the evaluation, Sweeney and Parlato (1982) concluded that

For the Spanish-speaking farm area, radio alone was an adequate source of information, much of which was translated into action. For the less developed area, a mixture of radio and home visits by a field worker and an agricultural specialist worked best. (p. 16)

Further, the "Radio Farm Forum Pilot Project" of Thailand (Punasiri & Griffin, 1976) concluded that (the crucial element of radio forums was the opportunity they afforded members to exchange experiences and ideas and to participate in group problem solving. The two-way flow of information between farmer and extension worker improved retention and overall learning of participants because of it high interest in content of' broadcasts and the opportunity for discussion. Messages were reinforced by various communication channels such as radio, literature, and field visits by extension agents and technicians. Agricultural broadcasting was made relevant to farmer problems through the exchange of ideas and problem-solving discussions.

A study of nutrition education in rural Mexico compared the effectiveness of a mass media group (radio with posters and pamphlets) with a direct education group (teachers and audio-visuals) in transmitting nutrition concepts. The study included three geographic areas with similar characteristics, all in the same state. Villagers in one area were taught by radio. In a second area, the method was the regular, face-to-face classroom instruction by teachers. The third area was a control, not taught directly by radio or teachers. They were not made aware of the radio programs but some of them could have listened to them. Knowledge of nutrition concepts was evaluated immediately after instruction and three months later. One year later, charges in diet were studied. The evaluation showed that nutrition concepts were learned equally well using mass media and regular, face-to-face classroom instruction. Both groups reported a positive change in food consumption habits. It was observed that radio messages w ere more uniform than the regular face-to-face methods of education, as messages were received in identical format by all listeners. Also style of presentation and content did not vary as they did from teacher to teacher indicating the uniqueness and uniformity of educational radio in teaching disadvantaged adults in developing countries (Cerqueira et al., 1979; Sweeney & Parlato, 1982).

Discussion

Many writers have proposed that educational radio can be most effective when supported by trained facilitators, group learning, group discussion (dialogues), feedback, and the use of multimedia approaches. For example, Perraton (1978) argued that trained facilitators must be used in order to successfully utilize educational radio. Similarly, Higgs and Mbithi (1977) contend that a "good

program has to be backed by careful training of trainers, preparation of training materials and continuous improvements in these" (p. 42). Perraton (1978) stated that group learning is more effective than individual learning and that group discussion is an effective method of learning from radio. The facilitator must converse with students in order to emphasize the main points covered by radio programs as well as to provide feedback where necessary. The facilitator must ensure that programs are supported by visual demonstrations, that groups are cohesive, and that discussions are carried out effectively by employing techniques of group discussion (Daniel & Marquis, 1983; Moore, 1983). Also, multi-media such as print materials, posters, films, and chalk boards, must be used to elaborate the main points to students.

Based upon experience with the Open University, Sewart (1983) claimed the study centres where students interact, help each other, replay programs, and opportunities for practical experiments are important. The study centre aids the effectiveness of educational radio and acts as a link between the institution and the local community in which it is embedded.

Neil (1981) contends that educational radio can only be effectively utilized by employing the following techniques:

1. Using educators with long (and preferably recent) experience of living in rural areas.
2. Communicating, in detail and continually, with the leaders of village learning groups where these exist.
3. Paying careful attention to, and learning from, the work of local communities or other organized groups (for example, farmers, agricultural, and health service radio broadcasters).
4. Working through valid intermediaries such as chiefs or headmen in villages, i.e., through established and accepted social structures.
5. Encouraging illiterate people to communicate their ideas and concerns through trusted and better educated villagers, who can act as scribes if required.

Finally, Bates (1982) argues that it is important to identify clearly the primary target audience in order to select appropriate production styles and transmission arrangements which are best suited to that audience. He reviews some research which "...supports the use of dramatization for reaching the disadvantaged" (p. 48).

Conclusion

It is recognized that there is no single "best" format for utilizing educational radio. This paper has examined some of the literature describing various applications of educational radio in developing countries in order to determine general lessons which can be learned from those experiences but not to argue that any particular

format or approach is ideal. Each situation in which educational radio is employed will be unique in some important ways which will impact instructional design considerations.

Regrettably, many of the studies which have investigated the effectiveness of educational radio have not been carefully designed and their results must be considered with some caution. Nonetheless, there is considerable support for the view that radio is an effective medium of instruction and its widespread availability developing countries underscores its educational potential and importance.

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