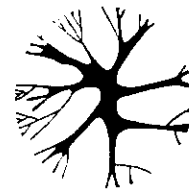


# COMMUNICATION RESEARCH TRENDS



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## EDUCATIONAL BROADCASTING

Pioneers of new communication technologies such as Edison and Marconi hoped that one of the major uses of their inventions would be to bring education to the masses. Lord Reith, the founder of the BBC public service concept of broadcasting, emphasized education in his famous triad, summarizing the aims of the BBC: 'to educate, to inform and to entertain'. The biggest markets and returns on capital investment were to be found in providing entertainment, however, and the less regulated broadcasters moved steadily in that direction. Today, broadcasting is firmly fixed in the minds of the public as primarily a means of entertainment.

In the last twenty years, however, the use of radio and TV in education has come back into the limelight. Most striking is the variety of new educational services appearing and the ingenious combinations of old and new technologies. With the new confidence in educational broadcasting, millions of people have gained access to the kind of education they need when they need it.

Broadcast instruction is becoming less a stepchild of educational systems and more often their showcase. The Open University of British television, treated with scepticism when it was given its Royal Charter in 1969, now annually enrolls an average of 60,000 students and has awarded nearly 100,000 undergraduate degrees.

The success of the Open University has encouraged adaptations of it in some twenty countries. Educational broadcasting is especially significant for developing countries. The Latin American Federation of Educational Radio (ALER) reports that its fifty or more affiliated systems operating in virtually all countries of the continent have more than one million students in basic education courses and more than fifteen million who are benefitting from educational open broadcasting in agriculture, health and grassroots organizations.

At the same time, the road to today's expertise in educational broadcasting has been littered with costly, frustrating failures. This issue of *Trends* calls attention to the many potential uses of broadcasting for education and, especially, to the ways that it can be a more effective learning experience for students.

### REVIEW ARTICLE

## I. The Expanding Use of Broadcasting in Education

Anthony Bates. *Broadcasting in Education: An Evaluation*. London: Constable and Co. Ltd., 1984.

Dean T. Jamison and Emile McAnany. *Radio for Education and Development*. Beverly Hills, CA: Sage Publications Inc., 1978.

Börge Holmberg. *Growth and Structure of Distance Education*. London: Croom Helm, 1986.

When radio was introduced in the 1920s many people held exaggerated notions of the enormous power of the media to influence behaviour. Early proponents of educating through broadcasting also expected too much from simply speaking into a microphone. After more than seventy years of trial and error, we now know much more about what kind of education can or cannot be achieved through radio, TV or some combination of the new technologies such as teletext, multi-channel cable, video, satellite broadcasting and computers

In a recent report for Swedish Radio's Audience and Programme Research Department, summarized in that department's newsletter (Findahl, 1989), lingering suspicions that 'television cannot teach' were laid to rest by citing the success of the open universities and

by outlining the results of research studies around the world. We know, for example, that television is extremely powerful in setting the agendas to which we devote much of our attention. It may not tell us what to think, but it has much control over what we think about. Its power to communicate simple facts and visual images is testified to by the continuing sale of broadcast time for commercials.

Although the already well-informed gain more information from television than the less-informed, television does reach groups in society which other informative media do not reach. Concrete information is more easily communicated by TV, but there is evidence that properly structured programmes do much to stimulate thought and insights. A key factor in this effect is how the broadcast material relates to what the viewer already knows. When

most television is given over to commercial programming, however, viewers may become accustomed to intellectually undemanding viewing and may come to regard the medium as exclusively for entertainment and relaxation. The commercial structure also tends to stress attention-getting contents over those which explain and penetrate. Informative programmes tend to be marginalized, relegated to poor time-slots by commercial considerations. Findahl concludes that television can teach, but its ability to do so depends on the purposes to which we put it (1989, p4). Much the same conclusion can be drawn about radio.

Early books on educational media, such as Wilbur Schramm's *Big Media, Little Media* (1977), were helpful in mapping out the major pattern and distinguishing the categories of media use. These were (1) to supplement the conventional classroom school, (2) to extend opportunities for formal education beyond the classroom, and (3) to conduct nonformal education.

### **The Aims of Broadcast Instruction**

Comparing Jamison and McAnany's book of 1978 with those of Bates in 1984 and Holmberg in 1986, we find a growing consensus regarding three basic objectives or justifications for broadcast instruction.

The first is to improve the quality of instruction by providing information or experiences that the ordinary teacher or textbook could not supply. Broadcast instruction can also introduce audio or visual media languages that cultivate aspects of the personality not touched in conventional teaching, as Gavriel Saloman has suggested (1979). Foreign language teaching, for example, has been improved by using the limited supply of native speaking teachers for central broadcast classes.

Secondly, broadcast instruction improves access to people living in isolated areas or whose adult commitments do not permit them to attend schools. This access may be accomplished either by 'extending' the existing levels (for example, adding grade levels with TV instruction) or by replacing conventional schools with distance teaching to individuals in homes or small self-organized groups.

Thirdly, broadcasting can reduce the cost of achieving a certain level of learning without multiplying facilities by providing one expert central teaching team for thousands of students. In poorer nations with rapidly increasing education needs, broadcasting has been virtually the only way education can be made available to large sectors of the population.

These advantages obviously depend very much on the context, type and objectives of education for which broadcasting is used. Before looking at more detailed research describing and evaluating different uses of broadcasting in education, it is helpful to outline the major classifications of broadcast educational experiences identified by Bates, Jamison and McAnany and others.

### **Broadcasting in Formal Education**

This category comprises educational broadcasting which is part of an organized set of courses leading to an officially recognized degree and emphasising general or professional knowledge rather than occupational practices. Two kinds of formal educational broadcasting can be clearly distinguished. The first is broadcasting provided to the conventional classroom teacher, as part of the educational materials of primary, secondary, or university-level schools. *Schools Broadcasting* of this kind serves to enrich or supplement existing content. It must be adapted to the established routine of the schools and to the needs of the teachers who use it.

A second kind of formal educational broadcasting is for *degree programmes outside conventional classrooms*. It usually uses distance education to respond flexibly to the time schedules, life-situations and needs of the learners. Since the nineteenth century many universities have had correspondence courses for students who cannot attend normal classes. What is new, especially since the

1950s, are separate distance education primary, secondary and university institutions offering recognized degrees of their own and using radio, TV or other broadcasting as a central medium of teaching. The radio schools in Latin America and the 'open universities' modelled on the British Open University, are examples.

### **Broadcasting in Nonformal Education**

Nonformal educational broadcasting is aimed at people who do not necessarily want degrees, but can use the information the programmes provide to respond to specific needs.

Broadcasting for *adult basic education* does not presuppose any prior educational preparation. It is a widespread form of educational broadcasting because it may be the only access that many have to such education. Its most common application is to teach functional literacy and numeracy skills, especially in developing countries where there are no adequate primary schools or where many children drop out early to work on the land. It might also include parental and family education, consumer education and household economics, teaching the necessary skills to take advantage of existing health or social services, or it might be used to help people face changes in jobs and life careers, as Anthony Kaye suggests (Kaye and Harry, 1982: 9-10).

*Continuing education* specifically builds upon education already acquired in school or college and extends or updates it.

*Instruction prior to entry into the formal education system* often aims to reduce educational inequalities due to poverty, family problems or regional underdevelopment. The Children's TV Workshop in New York, which designed *Sesame Street* and other pre-school children's instructional entertainment programmes is an institution specifically established for this purpose. However, the children's departments of virtually all national broadcasting systems design some instructional entertainment of this nature.

### **Broadcasting in Development**

This category is distinct from nonformal education in that the instruction is aimed not only at developing individual skills but also at helping individuals and groups contribute to national socio-economic goals, community improvement or the goals of a socio-political movement. This kind of education often includes a strong motivational and social-consciousness raising dimension. Bates and others distinguish three sub-types within this category. The first is *basic skill-oriented instruction* in agriculture, health, civic participation, family planning and family guidance, management of family economic enterprises, understanding of modern economic and political systems, etc. All these are generally oriented toward improving the quality of life and helping specific groups, such as farmers or lower-status urban immigrants, participate in national development.

A second is *open-broadcasting*, frequently using 'campaign' methods to raise comprehension, awareness and motivation in the general public regarding a specific public problem. The objective, at least in 'campaigns' is to get quick implementation of new patterns of behaviour regarding, for example, prevention of contagious contact in epidemics. Campaigns often use several media to be sure of the fullest diffusion of urgent information, as in the efforts of the World Health Organization and others to spread accurate information about AIDS.

Finally, *educational broadcasting for social change and political action* usually includes special approaches to raise consciousness regarding violation of human rights, to develop support for new legislation, or to raise the self-esteem of lower-status groups. For example, some educational radio stations in Latin-America have adapted the conscientization methods of Paulo Freire to the radio medium. They have integrated conscientization with instruction on the premise that these problems will be solved only if there are fundamental changes in the power structure.

## II. The Effectiveness of Broadcasting in Formal Education

*Development Communication Report*, 1988/4 (No.63). Washington, DC: Clearinghouse on Development Communication. (Special issue on distance education with a supplement on 'Interactive Radio: Distance Education in the Classroom'.)

The past ten years have seen an unprecedented expansion of distance education, with more than 2.5 million students enrolled in China's Central Radio and Television University alone, and the world-wide total enrolment of open universities close to ten million. As Dean Nielson points out, in the *Development Communication Report* (DCR: p.3) such a massive increase in access to higher education – particularly in Asia, where such institutions exist in Pakistan, India, Indonesia, Korea, Turkey, Sri Lanka, Thailand, Malaysia and Japan, as well as in China – is radically changing the pattern of higher education in many parts of the world.

In Asia the open university student is often a person using a second chance to obtain a university degree in hopes of finding a better job. Often the same institutions collaborate with business or professional clients in designing non-degree training courses for upgrading the abilities of employees, professionals or government officials.

João Oliveira, in the same issue (pp.1-2) lists some of the reasons distance education is suddenly becoming so popular. It can broaden educational opportunities in countries where resources are scarce. It offers flexible responses at a time when people are demanding a diversity of kinds of education and training which cannot be met by traditional schools. It offers a means of updating technical knowledge rapidly, just when rapid computerization of banks, airlines and other everyday activities has created an urgent need for such updating even in countries thus far lightly touched by the hand of 'modernization'. At the same time, the hardware and infrastructure for this kind of education are becoming cheaper, more reliable, and more generally available, as well as more 'user-friendly'. The process of development in developing countries has become increasingly complex, so that if a country wishes to develop certain kinds of systems at all it must engage in a massive educational programme for the people who will manage them. Finally, the success of institutions such as the Open University in Britain and the National Technological University in the United States has given greater credibility to the educational effectiveness of distance education institutions.

But early distance education earned a bad reputation, which still clings – even if undeservedly – to its better conceived, better funded and better organized contemporary forms. Critics, many of them school officials and teachers, still tend to emphasise the defects of distance education, while overlooking many of the defects in traditional education which it might help correct. John K. Mayo, in his summing up for the *Development Communication Report* special issue (p.16), weighs some of the pros and cons of distance education and frankly concludes that not enough research is yet being done to answer many of the major questions about it with any degree of certainty. But the promise it offers for meeting pressing modern needs, especially in developing countries, makes the effort needed to understand and use it effectively well worthwhile.

### Uses of Broadcast Instruction in Schools

Most countries which have public service broadcasting or strong public service regulation of commercial broadcasting have provided broadcasting to schools during the normal classroom hours. For example, Bates reports that in the 1981-82 school year the BBC presented 76 different series on radio, and the BBC and the independent commercial system together had a total of 98 TV series. A series is usually about ten linked programmes of thirty minutes each on topics which are related to the school curriculum. In Canada educational broadcasting is provincial in scope, with TV Ontario one of the oldest and largest systems. In the USA, with a

predominantly commercial system, schools programmes are broadcast or distributed by cable and microwave by state educational systems, by consortia of contiguous states, by school boards in large metropolitan areas or by large urban parochial school systems.

Almost universally, schools broadcasts are used, not to replace the teacher in a subject, but to 'enrich' an activity to which the teacher is already committed. In recent years, TV and radio programmes have become an additional 'learning resource' offering materials that would not otherwise be available. For example, cameras can peer down microscopes, and TV recreates history, dramatises current events or takes students to distant locations. With low-cost recording equipment more widely available in schools, it is now more common for teachers to design a course anticipating carefully the use of broadcast material as a support. The greater the planning and skill in integrating the material into existing curricula, the greater the effectiveness. A universal problem, much stressed by Bates, is that many excellent programmes from general radio and TV programming are covered by copyright laws and can only be obtained on video cassettes at exorbitant prices. Resolution of problems of copyright for schools use would open up a wide range of broadcast materials.

The supplement accompanying *Development Communication Report* No.63 discusses several related experimental programmes in interactive radio, one form of broadcast instruction in schools, in Latin America and elsewhere. The series of USAID-supported projects began with primary school arithmetic instruction in Nicaragua, during the period from 1973 to 1979 (see also, Suppes, Searle and Friend, 1978). Projects in other countries, based on patterns developed in Nicaragua, taught not only mathematics but also reading, writing, natural science and social science to pupils in grades one to four in primary schools. The new Honduran pilot project for teaching mental arithmetic proved so popular that 70% of the teachers in the area covered by the broadcasts were willing to purchase packets of programme materials during the first eight months of the project, in 1988. Although teachers or schools had to pay part of the cost, the programmes were more widely accepted in poorer rural areas than in more affluent urban schools. A research project in Nepal, using similar methods for teacher training at the post-secondary level, has been underway since 1978.

Broadcast instruction is particularly useful for teaching more esoteric, rapidly advancing bodies of knowledge, such as science, which may be beyond the capacities of individual teachers. It is also useful for discussion of complex social issues such as racial discrimination which can place a teacher in an emotionally volatile situation, or which require skills, such as language abilities, that the ordinary teacher may not have. Broadcast material can be especially helpful in responding to the particular interests of a class that the curriculum and texts do not foresee.

### Are Schools Broadcasts Effectively Used?

Bates notes that, surprisingly, neither the schools nor the broadcasting systems in most countries have made very good, up-to-date evaluations. In a 1977 survey of schools broadcasting in Europe carried out by the West German International Institute for Educational Broadcasting, only sixteen of the forty institutions replying to the survey had carried out some kind of evaluation survey in the previous ten years.

The more systematically collected British statistics, however, may indicate a trend, at least in Europe. In the UK, in the 1981-82 school year, nearly all schools had radio and TV receivers and audio-

recorders. While the use of radio had declined somewhat since 1978, use of TV had increased. The percentage of secondary schools using at least some TV programmes rose from 85 per cent in 1978 to 92 per cent in 1982. More significantly, the average number of educational television series taken per year increased from 8.6 to 13.3 per school in the same period. The most frequently used TV programmes are current events and history, while foreign language programmes, surprisingly, were among the least used.

From his review of data from the British experience and from other studies, Bates suggests that the most important conditions for effectiveness are:

1. Adequate provision of recording and replay equipment;
2. More direction or suggestions to teachers on how such material might be used, specific to each subject;
3. More initial and in-service training for teachers on the use of broadcasting;
4. Adequate time (at least two terms) to enable the full impact of a series to accumulate. For example, the Japanese network NHK found that students in classes with the broadcasts compared with those without began to show marked improvement only if the use was continued regularly over a period of a year or two, so that both teachers and students became familiar with this learning approach.

### The Stanford University Research

The most careful, detailed, systematic and cumulative research on the effectiveness of broadcasting in education was carried out at Stanford University during the years Wilbur Schramm directed the Institute for Communication Research there (about 1960-1975). At that time, when the modernisation paradigm was central to conceptions of development (see *Communication Research Trends* Vol 9 No 3) and there was a belief that mass media could play a central role in the cost-effectiveness of education in developing countries, international development agencies were willing to provide major funding for such evaluations if these were related to development. The most comprehensive synthesis of research that Bates can cite in 1984 is still Schramm's *Big Media, Little Media*, published in 1977, but relying heavily on data from studies as far back as the 1960s. Jamison and McAnany's 1978 book summarises much of the Stanford research dealing with radio in the 1970s.

One of the most carefully designed pilot projects using radio broadcasts in primary schools was the Radio Mathematics Project carried out in Nicaragua in the 1970s. The project broadcast a thirty-minute radio class followed by thirty minutes of teacher-guided activities. By its third operational year, just before it was prematurely discontinued by the Nicaraguan government, the broadcasts were reaching several thousand first-grade students. Students each received a worksheet through which they were guided by the broadcast classes. The programmes embodied psychological principles in their use of extremely frequent student responses in unison to the questions of the broadcast teacher – prompting the appellation, 'interactive radio'. In general, the project was very well managed, in part because the ample funding provided by USAID made it possible for a carefully selected staff, including American supervisors, to work independently from the normal bureaucratic structure of the Ministry of Education.

The evaluation of the Nicaraguan project in the second year, when it was fully functioning, showed that students in the programme had an average of 65.6 per cent correct scores on test items, compared with only 40.6 per cent from the control groups not following the programme. The project demonstrated that supplementary radio teaching could improve learning in a particular subject very considerably (Suppes, Searle and Friend, 1978). As has been mentioned above, its lessons are now being applied in a wide range of projects in other countries.

### Broadcasting as Part of Educational Reform

As Bates notes, Schramm argued that media can play a particularly important role in the educational reforms of developing countries where there is a lack of good teachers, resources for buildings and equipment are limited, and many children are getting only the minimum of primary education, if any at all. Teaching is often authoritarian and by rote memory, mainly because teachers are poorly prepared and it is difficult to try imaginative things with classes of forty to sixty children.

Another Stanford project helped to introduce TV classes in El Salvador, as part of an ambitious national educational reform. The project presented four broadcast classes a week in Spanish, social studies, sciences, mathematics and English, for grades seven, eight and nine. In the evaluations, those with instructional TV gained 15 to 25 per cent more on the general ability tests than did their non-TV peers. Although the instructional broadcasts certainly improved test scores, the budgets, though large by El Salvador standards, did not permit elaborate use of the medium, and classes were largely conducted by 'talking heads', i.e. an unimaginative lecture method. Interest among teachers and students gradually declined, and it was difficult to get instructional TV accepted as a permanent, central part of the educational system, as had been planned (Mayo, Hornik and McAnany, 1976).

Jamison and McAnany summarise their survey of in-school instructional radio with the conclusion that where radio classes give direct instruction and carry the major portion of the instructional burden in one or two subjects, carefully designed central broadcast classes *definitely improve the quality of learning*, compared with the effectiveness of the average teacher in most school systems. The cases that Jamison and McAnany use are largely from developing countries where teachers are often very inadequate. If broadcast classes are used for enrichment only, and depend on each teacher's ability to plan their integration into the curriculum, the broadcasts *may* improve the quality if the conditions, such as Bates outlines, are right.

Perhaps more convincing is the fact that where school broadcasts are available a very significant percentage of schools and teachers make use of them fairly consistently over a long period of time. This effect is undeniable even if detailed evaluation results are not always available.

### In Service Training for Teachers

Intrinsic to any process of educational reform is an effort to improve teacher training. Educational broadcasting has proven especially valuable in aiding this effort.

When the Open University began in Britain, in the early 1970s, the largest single professional group taking advantage of the new service, and the group with the best subsequent record of course completion, were teachers who wanted to update their knowledge and improve their career possibilities without leaving their jobs. In other universities, too, teacher training has been a priority programme which has attracted many students.

In many developing countries, the rapid expansion of primary school systems has meant hiring teachers who have only a minimum of basic education. In Kenya, Botswana, Swaziland, Tanzania and Uganda, programmes training huge new intakes of primary school teachers through on-the-job distance education resulted in striking improvement in teacher performance (Young, Perraton, Jenkins and Dodd, 1980: 23-29). The rote repetition-memorizing method with children chanting in an endless chorus, so common in developing countries, is often due to the fact that the teacher does not know enough about the material to teach in any other fashion. In Kenya and Tanzania, radio programmes were a central component along with other corresponding approaches. In both cases, the regular radio broadcast was credited with doing much to provide a more personal motivation for students, to help

the slower students, and to pace the student's regularity in following the lessons.

Gary Coldevin, (*Development Communication Report*, pp.5-7, 15), says that continuing population increases and perennial lack of resources have caused many Third World education officials to view distance education as their only feasible hope to meet the demand for reasonably well-educated teachers. Apart from the impossibility of providing conventional college educations for the large numbers of teachers needed, distance education of locally recruited unqualified teachers while they continue to teach has certain advantages over the traditional approach. Teachers can upgrade themselves professionally without interrupting their earnings and without neglecting farm work, which many rural teachers in developing areas must do to make ends meet. Absence of the teacher from his or her school for residential college work makes it necessary to find substitutes, who are likely to be even less well qualified; but that problem is avoided in on-the-job distance education. A teacher trained in his or her own village is less likely to migrate to the city than someone who has tasted the attractions of city life while studying in a teachers' college or university. Finally, more teachers can be trained, and at one-fourth to one-half the cost of campus-based instruction.

The limited existing evidence suggests that distance-educated teachers perform as well as conventionally-educated teachers, but many problems and questions remain. Only longitudinal studies of the performance of both the teachers and their students can adequately assess the long-term results.

### **Primary Education by Radio**

The initial model of radio schools in Latin America was begun as a form of basic literacy and numeracy education by a parish priest, Joaquin Salcedo, in Colombia in the late 1940s. Very quickly, Fr. Salcedo developed this as nonformal education for peasant farmers with a strong emphasis on basic education as a preparation for participation in community development councils, co-operatives and farmers' organizations. Eventually this was organised as a national institution, Accion Cultural Popular (ACPO), with its own broadcasting station, publishing house, and centre for training campesino community leadership. Much of the early success of ACPO was due to its ability to work through the local parish priests in promoting radio listening groups and other activities. Within a few years ACPO had more than 250,000 rural people enrolled in its basic education courses, which did not themselves offer a certificate but enabled students to qualify for a government equivalency certificate for the first three or four years of primary school. The ACPO system adapted well to the needs of different countries of Latin America. Some moved toward formal education, others towards basic education programmes emphasising socio-political action and still others toward open broadcasting. Today there are more than fifty systems of radio schools with systems of formal and non-formal education organised as the Latin American Federation of Educational Radio (ALER) with a secretariat in Quito, Ecuador.

The radio schools in Latin America were designed by Latin Americans in response to the problems of communication with a rural population scattered in rugged Andean mountain ranges. Most of the radio stations support themselves by advertising revenue based on a programme of general broadcasting to their region. Support of a central team of broadcast teachers and funds for the printed materials which are distributed comes mainly from Catholic foundations in Europe, but the system could not be maintained without the dedicated semi-volunteer work of lay and religious personnel associated with the Church.

### **The Model of Radio Santa Maria**

Radio Santa Maria, operated by the Jesuit Order in the north-central

region of the Dominican Republic, introduced the ACPO system in the early 1960s. The station's management soon became dissatisfied with what it considered the rather loose system of basic education and the relatively poor achievements in terms of cognitive skills that the ACPO system produced. In looking for a more effective system, Radio Santa Maria found it in the Canary Islands.

As part of Spain, those islands can be considered a relatively less economically developed part of Europe, with a higher level of educational development than that of most of the Third World countries. Around the same time Radio Santa Maria was getting started, Radio ECCA was established in the Canary Islands, with a complete primary school course offering a certificate recognized by the Spanish government. It gave a much more intensive primary school education than was possible with Colombian semi-subsistence farmers (Espina, 1982). Radio Santa Maria's administrators judged that Radio ECCA's audience matched their own more closely than did ACPO's, and revamped their programme along the lines of the Radio ECCA model.

For about twenty years, Radio Santa Maria has offered a primary (grades one through six) and intermediate (grades seven and eight) education with content similar to that of the state system. It gives the same certificate as that given to graduates of the conventional schools. Its students are typically primary school drop-outs, forced to leave school to support their families. The great majority are campesino families in rural areas. Their ages range between fifteen and forty, but most are between fifteen and twenty-two. Radio Santa Maria has consistently enrolled about 20,000 students spread over the eight grades in each six-month session. Most, however, are concentrated in grades four to eight.

### **Multi-Media Approach of Radio Santa Maria**

Radio Santa Maria (RSM) has built six dimensions into its instructional method: (1) a one-hour broadcast each evening, received individually by students and presented as a question-answer dialogue simulating a teacher-student discussion – in other words, 'interactive radio', as described earlier; (2) a set of worksheets which are produced to respond to feedback on student needs are distributed to students each week and are designed to follow the logical flow of the broadcasts and to pose questions answered or discussed in the broadcasts; (3) a weekly meeting of students in each community with an auxiliary teacher who answers questions and reviews material that presents difficulties; (4) weekly group discussion among students using the consciousness-raising methods of Paulo Freire, adapted to appeal to young adults and to bring out for them the significance of the material regarding human and social problems; (5) encouraging students to participate in local organizations and farmers' co-operatives; and (6) developing the content of each course around a central social theme such as the importance of community organizations or human rights. The social themes are discussed, under various aspects, in the weekly meetings of the students. Many of the students are recruited through the leaders of community organizations, especially youth clubs, so ties between those organizations and the local groups of RSM students are often very close.

### **The Effectiveness of the ECCA-RSM Method**

An evaluation in 1975, commissioned by UNESCO, compared the achievement of RSM students in the sixth and eighth grade certificate examinations with the scores of a comparable sample of students in the night-school course offered by the public schools using conventional classroom teaching (White, 1976). The groups were similar in age and ability range, but the RSM students may have had a disadvantage in coming from primarily rural, peasant backgrounds. The RSM students had significantly higher scores (usually a five to ten per cent higher rate of correct answers) in all

subjects except for one zone of the RSM system where there had been weak supervision of the auxiliary teachers in the previous year.

The comparatively good showing of RSM students, despite the apparent handicap of the background of many of them and the

individual, non-classroom character of their learning situation, was credited by Dominican Republic educationalists to the superiority of both the broadcast classes and the printed materials of RSM, compared to those of the conventional schools.

### III. Broadcasting for University Education

Börge Holmberg comments that the founding of the British 'Open University' (OU) in 1971 marked the beginning of a new era in distance education, partly because the OU has provided a general model for approximately twenty roughly similar institutions around the world. However, a number of conditions encouraged the spread of distance universities in the 1970s.

First, the new 'high-tec' era seemed to demand more advanced education and re-training of adults with only a minimum of primary or secondary education. University education also had begun to be a condition for upward social mobility and social acceptance. With conventional education from nursery to university widely available to the young, the belief spread that the last remaining frontier of education was continuing education to provide adults with opportunities for enrichment, pleasure and capacities to adjust to different life phases. Finally, there was a fascination with the expected ability of 'new communication technologies' to make low-cost flexible education widely available.

In the initial planning of the OU, radio and TV instruction were considered central. With experience, it has become clear that broadcasting must be just one aspect of a multi-media approach that is based on the printed text and includes a flexible mixture of audio and video cassettes, telephone, tutorial interviews and some direct classroom instruction.

Though an increasing number of conventional universities have enabled students to take listed credit courses through mail correspondence, and there are a large number of commercial, occupationally-oriented 'correspondence colleges', the OU in Britain is considered innovative in a number of respects. It is an autonomous, publicly supported university specialising only in distance education, and it is fully co-ordinated with the rest of the British educational system with recognition of its course credits and degrees. Secondly, it is 'open' in that it has no prior educational qualifications. Available places are awarded on a 'first-come, first-served' basis, and the staff is guided by an ethos which calls for making education democratically available to all social classes and occupations. The OU, furthermore, attempts to maintain parity of standards with other universities by introducing new educational methods adapted to adults studying at a distance and by recruiting a teaching staff with high qualifications and with a special dedication to making higher education widely available. Fourthly, it builds instruction around the mediated communication of radio, TV and audio or video cassettes, which make the teacher more immediately present. Also innovative is the production of OU programmes through co-operative arrangements with the existing highly professional broadcasting systems of the country, relying especially on the long tradition of educational broadcasting by the BBC. A fifth innovation is the provision for two-way interpersonal communication between students and teachers through correspondence, telephone, meetings between students and teachers and special, locally-appointed tutors, and some classroom instruction. There are also regional study centres for access to student counselling, libraries, etc. Finally, to ensure continuing innovation of instructional methods and uses of the media, the OU in Britain maintains a strong research and evaluation department, not only to monitor the progress of students and the achievement of the goals of the institutions but also to demonstrate to a sometimes sceptical public that distance education is feasible.

#### The Role of Broadcasting in the Open University Model

As Table 1 indicates, the amount and form of broadcasting varies greatly among distance universities, and some do not use broadcasting at all. The increasing availability of audio and video recording and playback equipment to students is changing the way media are used. Cassette distribution is becoming more central because cassettes are adaptable to students' time schedules and, unlike a broadcast, may be repeated over and over again.

The large Central China Television University depended almost entirely, in its earlier years, on broadcasts of fifty-minute, 'talking-head' lecturer-blackboard classes. The distribution of lecture outlines and access to texts then was very erratic, but as the system has matured there is greater dependence on printed texts (Rumble and Harry, 1982: 62-63).

Britain's Open University is another heavy user of broadcasts. The OU can depend on the highly sophisticated broadcasting and cassettes as an essential component of the instruction. The broadcasts supply a broader *experiential* knowledge of field sites in geography, experiments in physical sciences, animated modelling of mathematical or physical theory, industrial applications in engineering courses, documentaries in social science and dramatisation in history, literature and the arts.

Open universities in other countries such as Israel, Costa Rica and Venezuela attempt to use some broadcasts along the lines of the British model, but in developing countries the lack of an experienced and richly endowed production organisation such as the BBC means that broadcast programmes are fewer in number and of lower quality. Many of these distance education universities, with small enrolments, prefer to supplement their own limited productions with material purchased from other institutions.

The Universidad Nacional de Educacion a Distancia in Spain is different in that its broadcast medium is largely radio. Although the original plan called for the use of TV, the expense involved has limited video production (Rumble and Harry, 1982: 156).

The Athabasca University in Canada, where there is greater availability of new communication technologies, has used, in addition to limited broadcasts and cassettes, cable TV, satellite broadcasts and teleconferencing.

Canada also has a unique form of broadcasting at the tertiary level which does not follow the British OU model: the Knowledge Network in the province of British Columbia. The Knowledge Network is a co-operative of conventional universities in the province, the Open Learning Institute with 13,500 off-campus students, community colleges and a wide variety of other institutions. Any institution which is a part of this co-operative can access any of its own programmes or get access to programmes of any other institution. The styles of presentation may vary greatly, even within one programme.

#### Evaluating Broadcasting in Distance Higher Education

According to Bates, planning the use of a broadcast component in distance education must deal with three major challenges.

The first of these is the enormous amount of time needed to cover the large number of specialised courses in the full curriculum that most distance universities try to maintain. Broadcasting is thus of greater importance in the general foundational course. The OU in Britain, for example, had introduced at the time of Bates' writing

Table 1

## USES OF AUDIO-VISUAL MEDIA IN AUTONOMOUS DISTANCE TEACHING UNIVERSITIES

Situation in 1980/81								
Country	Institution	Date	No. of Students	Broadcast TV Hrs	Video Cassettes	Radio Hrs p week	Audio Cassettes	Main Medium
Canada	Athabasca Univ	1975	3,500	12	At Centres	1	0	Print
Canada	Téléuniversité							
	Quebec	1972	30,000	9	0	2	0	Print
China	Central Broadcasting & TV Univ	1978	300,000	33	0	2½	0	TV
Costa Rica	UNED(Universidad Nacional de Educacion a Distancia)	1977	7,000	4	At Centres	½	Planned	Print
Holland	Open Univ	1983	?	3 (planned)	Probably	0	Possibly	Print
Iran	Free Univ of Iran	1973*	1,400	1½	Planned	1½	0	Print
Israel	Everyman's University	1974	10,000	3	At Centres	5	0	Print
Pakistan	Allama Iqbal Open University	1974	31,000	1½	0	5	0	Print
Poland	National Univ of Radio & TV	1974	70,000	3	At Centres	2	0	TV
S. Africa	Univ of South Africa	1951	56,000	0	Some	0	Some	Print
Spain	UNED	1972	51,000	0	30	15	3,000	Print
Sri Lanka	Open University	1981	5,000	0	0	Planned	Some	Print
Thailand	Sukhothai Thammathirat Open University	1978	150,000	0	0	Planned	?	Print
U.K.	Open University	1969	85,000	35	Planned	28	50,000	Print
Venezuela	Universidad Nacional Abierta	1977	13,000	>2	At Centres	>1	0	Print
W.Germany	Fern Universität	1974	36,000	0	1% of courses	0	3% of courses	Print

\*The Free University of Iran was dissolved in 1977, following the revolution, after only one semester of enrolled students.

Sources: Bates, 1980; Rumble & Harry, 1983; Mackenzie, Postgate & Scupham, 1975; and private sources.

Reproduced, with permission, from Anthony Bates, *Broadcasting and Education: An Evaluation*. London, UK: Constable, 1984. pp.143-144.

(1984) the rule of teaching via cassettes for courses with enrolments of less than 300.

Secondly, the competition of other programming for broadcasting times that are accessible to students is often a major problem, as is the inability of many students to fit their schedules to fixed broadcast times. The fact that most distance education universities report that students are listening to between fifty and seventy-five per cent of the broadcast classes is remarkable considering that the broadcasts are generally a supporting, enriching dimension of the instruction, rather than its core.

Furthermore, production of the broadcast programmes is usually done by a separate co-operative institution which has its own internal demands and professional ideals. Teachers often cannot plan with certainty just how the broadcasts will fit in with other components of the instruction. Bates notes (pp.195-196) how, in a few cases, the BBC has objected to transmitting some Open University programmes on the grounds that they were too sexually explicit! Broadcast production and teaching are two quite different

forms of communication, and both producers on the one hand and teachers on the other have difficulty understanding how broadcasts are useful in formal education, and therefore often cannot instruct students in how best to use them. For example, an evaluation of how students use supporting documentaries found that one-third of the students completely misunderstood the intended instruction purpose of getting students to apply more abstract textbook information to real-world situations. One-third understood the purpose but were unable to do it. One-third, and sometimes only one-sixth, both understood the purpose and were able to use the material as intended (p.175).

Nevertheless, Bates argues that broadcasting performs a number of functions that apply to all course materials:

1. It increases students' sense of belonging. It establishes a sense of identification of and with course designers which makes the teaching more personal. Holmberg insists that the students' feelings of personal relationship between themselves and the supporting organisation and their feeling that the teaching institution is

personally interested in the relevance and progress of the students are key factors in the effectiveness of distance education (pp.103-133).

2. It reduces the time required by students to master content from reading alone.

3. It paces students. It keeps them working regularly and breaks the inertia of beginning to study in the evening.

4. It helps to recruit or attract new students, either to the University or to specific courses, and to interest general viewers in the subject matter.

5. It establishes the academic credibility of the course to the 'outside' world.

Broadcasting supplies material for specific courses that other media or instructional methods simply cannot provide, even in

conventional universities. Bates lists eighteen such functions. For example, in the social sciences broadcast documentaries can be of great help in providing case studies of real world situations to apply more abstract textbook material. The dramatisation and presentation of visual plastic arts often are not reproducible in any other medium.

The governments of the British Commonwealth, now numbering 48 countries, have recently established the 'Commonwealth of Learning', to coordinate and strengthen distance education in the member countries. A long-term goal is to make possible full recognition of credit earned at any participating distance college or university by every other institution in the system. (*Media in Education and Development*, vol. 21, no. 4, Dec. 1988, pp.134-136).

## IV. Non-Formal Education: Coping with Life

Formal education, with its requirement of disciplined study for examinations and certificates, appeals more to those who are motivated by ambitions for a career and upward mobility. Many people, after a not-too-successful or pleasant earlier experience of primary school education, are not attracted to programmes of formal education even though, theoretically, they might benefit most from it. Earlier difficulties in life stem from a general inability to cope with the challenges of an increasingly complex society, and formal education is too focussed to respond to these needs. Often, less career-minded people need an earlier general type of orientation in order to take better advantage of formal education.

Many of these less upwardly mobile people, however, are the heaviest users of the mass media as an entertainment medium. Broadcasting has been particularly effective in reaching people who experience psychological or social barriers to formal education. Many of these people would consider the Open University a total bore. However, programme designers of non-formal educational broadcasting have to know how to appeal to a very different set of motivations than those which attract people to formal education.

### Reaching the Unmotivated

A classic example of what Bates calls 'education by stealth' was a British programme, *Just the Job*, designed to help 16-20 year-old less qualified school leavers get into the job market. Unemployment among this group was beginning to be particularly acute in Britain at that time (middle and late 1970s). The programme used a language of youth subculture - rock music and fashionable clothes, teenage presenters, etc. - and was scheduled at the peak TV viewing time for this group of young people. After some experimenting, the length of the programme was reduced to a very fast-paced six minutes. The weekly programme produced by the southwest regional commercial TV company for that area of Britain, ran three years (1977-1979) and turned out to have the highest audience rating for programmes aimed at that age group. *Just the Job* discussed how to make contact with job opportunities and alerted young people to the availability of a free telephone service for job counselling as well as job-finding kits. Over three years more than 10,000 young people took advantage of the free telephone service. The success of *Just the Job* led to similar programmes in London and other parts of Britain. Much of the success of the initial project was credited to the careful research on youth motivations and style of communication by agencies such as the International Extension College, which specialises in adult non-formal distance education.

Similar principles of programme design using the communication styles of minority groups have been successful with immigrant groups, such as housebound Asian women, as well as

the mentally and physically handicapped, the illiterate and the elderly.

*Sesame Street*, designed to give minority pre-school children the preparation for school that their homes and social environment did not provide, used similar careful research on the communication styles of pre-school children in minority contexts (see *Communication Research Trends*, Vol 4(1983), No 3).

### Coping With Modernisation

People who formerly were confident in their possession of traditional skills have increasingly found themselves marginalized by the rapid changes taking place in modern industrialized society. Typical of this phenomenon are the small 'peasant' farmers of France. Beginning in the late 1960s and continuing through the 1970s, a consortium of French Universities, with support from relevant government ministries, developed a series of TV programmes to help small farmers make a transition to a more industrial, commercial form of agricultural enterprise. The programmes, broadcast at the midday hour when farmers had some leisure, dealt with new agricultural technical and managerial practices, but also aimed to cultivate an appreciation for traditional rural values and self esteem in the midst of change. The TV broadcasts were intended to stimulate a general awareness, but also encouraged farmers to attend animation meetings of rural organizations to discuss lines of action such as forming marketing co-operatives. After experimentation it was found that a fictional drama format was more attractive than realistic interviews and documentaries.

In Britain the BBC has been running *The Archers*, a daily radio serial, since January 1951, following a short trial run in 1950. It grew from concern that not enough people were listening to food production information programmes in the immediate post-war period when food shortages were very severe and increased production was necessary.

It is a fifteen-minute daily drama serial intended to keep the interest of the listener while putting forward the latest farming methods and suggestions for increasing food production. *The Archers* programme still has a large and regular audience, making it one of the longest running radio serials in the world.

### Community Education

Community education tries to help adults better integrate their roles of parent, consumer, employee and citizen with the demands of their family, workplace and community. It is especially concerned with assisting mature people in the transitional phases of their lives to take advantage of their own wealth of experience and to make use of available community services. Ideally, community education



builds on the volunteer organizations and social networks that exist in the community, but it also seeks to strengthen the local network of community organization and brings people out of isolation into contact with others (Kaye and Harry, 1982: 84-113).

A somewhat more structured approach is adopted by the British Open University in its community education service. One project, for example, focussed on typical life-stage problems, marriage, planning families, child and adolescent problems, middle age, retirement and old age. Formal enrolment may also be done on an individual basis. The broadcasts are produced as an integral part of a multi-media approach with a thirty-two page full colour booklet, a resource pack containing posters, study guides and cassettes. The broadcasts are presented as interesting documentaries with series titles such as *Consumer Decisions*, *Moneywise* (on family budgeting), etc.

### **Participatory, Community-Produced Programming**

Community radio and TV stations and public access 'community' cable channels are now increasingly common throughout the world, and many countries have legislation requiring cable systems to make a public access channel available to community organizations. Community education programmes emerging out of community-controlled production are felt to have greater

educational value because ordinary people are directly involved in planning and producing them. This form of community educational programming, it is argued, responds much more directly to the needs of the community and to the real initiative and local culture than centrally planned community education programmes.

In the United States there are an estimated 1,200 community access cable centres co-ordinated by independent access management corporations or by citizens' 'co-operatives' of community organizations. Although many of these are low-budget, volunteer operated centres with a very amateurish level of production quality, an increasing number are finding volunteers with professional training or are giving professional training to volunteers. Also, more community or public funding is being channelled into this sort of community production. Community channels are beginning to develop some fairly high quality programming, supplying a need not met by U.S. commercial broadcasting. The National Federation of Local Cable Programmers holds an annual 'Hometown USA Video Festival' of productions by 'non-professionals' which attracted more than 1,000 entries in 1985 and demonstrated the increasing quality and popularity of community-produced programmes, according to the journal *Community Television Review* (1985).

## **V. Continuing Education**

Senior broadcasting executives, who feel that educational programming reaches only small audiences, argue that the best educational material is the general programming of news, documentaries, good drama, public affairs, etc. Bates questions, however, whether this conscious or unconscious transmission of general cultural values is really educational. 'There is an astonishingly sparse amount of published research on what people actually learn from general programmes; Bates notes (p.120). The research on what people retain from news broadcasts suggests that memory for the content of individual news programmes often appears very poor indeed only a short time after viewing. Much research concludes that the poor recall of the news is due to the way news programmes structure and package information in the form of short, unrelated items with inadequate background or interpretation. News and much documentary programming attracts viewers, but often does not adequately inform them and almost certainly cultivates very little comprehensive critical capacity.

Most broadcasting systems, especially those in the public service tradition, make a commitment to presenting types of general interest programming which also are explicitly educational. British public service broadcasting has developed considerable expertise in producing general-interest programming which is also entertaining. Some of this includes leisure programmes such as cookery, tourist information, film and literature reviews, home self-help tips, etc., that are found in most broadcasting systems. British broadcasting is stronger on what Bates calls 'up-market' programmes that are truly 'continuing' education programmes in that they continue on from where people left off at school. They also attempt to help people grow vocationally or professionally.

In 1981 the BBC negotiated with a British computer manufacturer to produce a low-cost microcomputer to the BBC's specifications which could be used in conjunction with its TV series *The Computer Programme*, aimed at both adults and schools. This resulted in over 80,000 orders for the microcomputer over a period of a year.

Along with many of these programmes the BBC and the British commercial networks frequently publish a book or booklet. The popularity of these books has made the BBC one of the largest publishers in Britain!

### **Linking Broadcasts with Study Groups**

One of the world's most successful educational broadcasting projects, in terms of total numbers and the perseverance of its students, was a course in basic English for adults in Sweden. The course was aimed primarily at Swedish adults with no previous knowledge of English and low educational qualifications. Just over ten per cent of the adult population in Sweden watched the television programmes during a given week in the course's first year of presentation, and more than 800,000 books for the course were sold over three years.

Much of the success of this particular course was due to the tradition in Sweden of study circles in every town or large village. Also, Sweden's educational broadcasting is closely co-ordinated with adult education efforts, and adult education projects such as the basic English course are carried out with the study circles. The interest of the Swedish public in learning English and its satisfaction with the study-circle method is shown by the fact that forty per cent of the people who started the course stayed with it to the end of six terms of thirteen weeks. The course was supported by training of group leaders and by audio tapes, film strips and study guides.

The course was also eventually used in Norway, Finland and Denmark with minor adaptations.

### **Factors in the Success of Broadcasting in Non-formal Education**

Bates suggests that the prime condition for success of non-formal education in terms of numbers attracted and the effectiveness of learning is that the programme must be entertaining and must use the forms of entertainment appropriate for the target group. This implies that they are broadcast, not on special educational channels, but on regular entertainment channels at the time particular groups

seek their entertainment.

The programme also must be well-financed in order to attract talented producers and meet the same standards of quality as other general programming.

Extensive preliminary research should adapt the programmes to communication and ways of informal learning common among the target group.

The educational projects must be backed up by careful collaborative planning among all necessary support agencies so that there is co-ordinated action with local social networks and good response by agencies to any action that individuals or groups of the target audience may take.

Interpersonal support is important. This may consist of study groups, local voluntary agencies, peer support or support of family members. For example, programmes such as *Sesame Street* or *Just the Job* for children and youth also had in mind creating general

awareness in family and community circles so that these informal interpersonal networks would be supportive.

A strong commitment of broadcasting networks to educational broadcasting is necessary. Disadvantaged and working-class people tend to use the entertainment channels which are more likely to be commercial channels. Most programmes of non-formal education attract audiences almost by chance as people watch general programming.

This fact is extremely important in the current movement toward deregulation that is influencing public policy regarding broadcasting. Given the unfounded presupposition of many broadcast executives that general broadcasting is even more educational than specially-designed educational programmes such as *Sesame Street*, it is likely that one of the major casualties of deregulation will be non-formal educational programming.

## VI. Educational Broadcasting in Development Communication

Countries in the early stages of socio-economic development typically have a predominantly rural population scattered in hinterlands with very inadequate roads, virtually no regular postal system, and a high rate of illiteracy preventing access to print media. Agriculture is often the basis of the national economy, and improved agricultural production is seen as essential to generate capital for industrialisation and building the infrastructure of a modern nation. Broadcasting is often proposed as virtually the only effective means of communicating improved agricultural methods, better health and family planning practices and the understanding of how a modern nation works.

### Broadcasting in Rural Extension Systems

In the 1950s and 1960s, when the first major drives for development began, the communication system to rural areas was structured around cadres of agricultural, health and other types of 'extension agents' supervised by a hierarchical bureaucratic structure of national, regional and district offices of government ministries. Most of these rural communication systems were modelled after rural advisory services in the United States and Europe which made individual, interpersonal contacts with those farmers and farm families who were open to improved practices. The use of radio for open broadcasting programmes dealing with agricultural methods for men, homemaking for women, etc., had been part of the extension models in the United States and Europe, and some use of broadcasting was introduced as a subsidiary part of the extension systems in developing countries.

As McAnany and others have pointed out (McAnany, 1980), the use of broadcasting for extension systems was usually very ineffective for several reasons. The programme producers were often senior, urban-based teachers of agronomy or health, and they often literally read out over the microphone lessons from manuals in a technical, dry language unintelligible to rural people. More important, peasant farmers often did not have the land resources or access to markets that the new information presupposed. Over the years a number of alternative broadcasting approaches have proved to be more effective with rural lower-status groups.

### Radio Listening Groups

The open broadcasts of national or regional rural services had the disadvantage of not being oriented to any specific group or audience. The radio listening groups brought together the farm men or women of a community to first listen attentively to a broadcast prepared specifically for a series of organized and previously-

known groups and then discuss how to apply the recommended practices with the guidance of a local community leader.

Listening groups usually have focussed on a particular activity. Ideally the group already has thought through the process of implementation. The farmers' questions about that process are the starting point of the broadcasts, and the contents are developed following the natural cycle of crop production.

The group leader is often a local farmer who can 'translate' the more technical language of the broadcast into locally understandable language and who can immediately answer questions and lead a discussion of how a new practice can be integrated into the often delicately balanced local cultivation systems that have been adapted over generations to local soil, climate or other conditions. Group discussion has the advantage of input from all members of the group, so that a horizontal communication community is formed among the members.

Radio listening groups also involve other media, such as pictorial charts, cartoon drawings, pamphlets, and other simple audiovisuals. Ideally, local farmers are encouraged to have small demonstration plots in their neighbourhoods where they can experiment with a new practice before introducing it into their own production systems.

Discussion leaders meet regularly with local supervisors feeding back the typical questions and problems that come up in group discussions. These questions then form the basis of further broadcasts. The broadcasts report on activities of groups, present live interviews with farmers and try to develop a quasi-personal relationship between broadcast presenters and the farmers.

### Broadcast Campaigns

One of the consistent findings of audience research is that people are more likely to take and apply information from mass media when there is a problem or crisis that sets off a search for information outside immediate sources. Campaigns are designed to respond to a widespread sense of urgency such as an epidemic, education for a major national decision, or a chance to take advantage of a new technology. Campaigns usually are oriented to some very concrete action with immediate, short-term, 'quantifiable' goals. They focus on catching attention with frequent spot announcements, supportive mentions throughout all programming, endorsements both from well-known personalities and from the 'ordinary people', carefully designed slogans, etc.

Again, campaigns are multi-media, with supportive posters and billboards, advertisements in other media, distribution of leaflets,

and, especially, engagement of interpersonal networks in a wide variety of local community organizations. Most campaigns are oriented to local discussion groups specially organized or to other, already existing groups. Campaigns require close co-ordination and support among many organizations. Many campaigns introduce a personal touch with the broadcast of visits to local communities, socio-dramas debating the advantages and difficulties that people encounter in campaigns, demonstrations of good results in the lives of people, etc. (Cabezas, 1980: 214-218).

One of the most widely cited case studies in this area is that conducted on the series of development campaigns carried out in Tanzania in the 1970s, and mentioned both by Bates (p.95) and by Jamison and McAnany (pp.72-77). A 1973 campaign to introduce improved health practices involved more than 75,000 local discussion groups with more than 2,000,000 adult participants. Evaluations showed a 47 per cent increase in knowledge and widespread adoption of preventative health practices such as building latrines, clearing mosquito breeding areas and boiling drinking water. The radio school systems in Latin America also have developed forms of radio campaigns particularly appropriate to that cultural context (Cabezas, 1980).

### Using an Entertainment Format

One of the widespread fallacies of early attempts to use broadcasting for development was the idea that if information is presented earnestly and clearly listeners will be convinced by its 'obvious' advantages and rational argument. Programme producers were recruited from the ranks of teachers, technically trained

agronomists and ministerial bureaucrats – people who often excelled in a heavy, boring, didactic and authoritarian style. People in development communications now realise that broadcasts must use dramatisations, humour, a fast pace and a personal touch. In Latin America some of the most effective educational programmes are using the dramatic *radionovela* and *telenovela* formats.

One case of an educational programme which has adopted an entertaining 'breakfast-show' variety format is the *Universidad Para Todos* (University for All) broadcast daily by Radio Santa Maria in the Dominican Republic for more than fifteen years (Cabezas et al, 1982). *Universidad Para Todos* has built up a loyal audience that is estimated to vary from 300,000 to 500,000 in the north-central region of the Dominican Republic. The programme is centred around a host and hostess who maintain a friendly patter as they introduce brief 'radionovela' dramatisations followed by discussions in the studio. This is interspersed with letters from the audience (frequently denouncing bad public services), announcements of organizational activities, promotion of campaigns and advice for farmers and farm housewives. A particularly interesting feature has been community socio-dramas. The presenters go out to a community in the region, talk with people about community activities and problems and then ask the people to dramatise a community issue. The dramatisation and following discussion are recorded and edited for radio presentation. Letters of comment are then solicited from the audience and invitations to visit other communities are followed up. The programme thus carries on a kind of inter-community dialogue.

## VII. Satellites in Education

Anthony W. Bates. *Satellites for Commonwealth Education: Some Policy Issues: A Study Commissioned by the Commonwealth Secretariat*. (pt.1, Executive Summary, and pt.II, Main Report). Milton Keynes, UK (typescript), 1987.

*Project Share: Satellites for Health and Rural Education*. London: International Institute of Communications, 1986.

John Duke, 'Olympus in Perspective'. In *Proceedings of the Seminar and Workshop on the ESA Olympus Satellite for Education and Training in Europe*. Avignon, France, 13-15 April, 1988. Paris: European Space Agency, 1988. pp 1.1-1.11.

As the Project Share report frankly notes, evaluation research on satellite communication projects encounters great difficulties due to the complex nature of each project. The over-all success or failure of a given experiment often takes years to determine with any degree of confidence. Even then, the criteria of 'success' or 'failure' may not be agreed to by all observers. For example, the report cites a live television link in which University College, Dublin, broadcast regular lectures to students in the University of Amman, Jordan, twice a month for several months, via satellite. Although the project was hugely popular, in both institutions, and highly 'successful', at one level, the report suggests that it could have been done much more economically simply by sending video cassettes to Jordan by air, rather than using the expensive satellite link. On the other hand, the live satellite connection added a certain excitement to the exchange which probably enhanced its value as an educational instrument. It would be difficult to say whether that stimulus was or was not worth the extra cost (pp. 5 and 14).

According to Bates' report for the Commonwealth Secretariat, satellites are a flexible means of providing valuable and cost-effective educational services in many countries. He found that twenty Commonwealth countries were using or were linked to satellites for educational purposes. These countries ranged from Australia, Canada and India to small islands like Grenada in the Caribbean and Vanuatu in the Pacific.

Satellites are most useful in providing educational programmes over large distances, as they are a cost-effective means of reaching remote or isolated regions. They have also been found useful as carriers of new

services that cannot or would not be provided by terrestrial broadcasting.

The Bates report is based on five case-studies of experiences in Australia (educational projects using AUSSAT), Canada (The Knowledge Network on the Anik-C Satellite), India (educational projects on INSAT), the South Pacific (the University of the South Pacific's USPNET, using the INTELSAT system), and the West Indies (The University of the West Indies Distance Teaching Experiment, or UWIDITE, also using INTELSAT).

AUSSAT educational services range from general educational tv programmes to specific teaching of school children in remote homesteads using a mix of TV, radio and the telephone. Responsibility for programmes was shared between state governments, commercial companies and educational institutions. One example of a particular use of AUSSAT is provided by Duke, who cites the Queensland School of the Air, which uses satellite to provide an interactive link (one-way video, two-way voice and data) between classes of children in isolated areas and specialist teachers in a studio in Brisbane.

Canada's 'Knowledge Network', discussed above, is an educational TV network financed by the provincial government of British Columbia. Programmes are transmitted over the Anik-C satellite either for home reception or to cable systems, which must carry them. Dukes reports that an Open University Consortium has developed which is leading to a growth in distance learning activities. About 100 hours per week of programmes, from all sources, are broadcast regularly over the Network.

India's earliest experiments with the use of satellites for education

began in 1975 using the American ATS-6 satellite, when TV programmes in the Satellite Instructional Television Experiment (SITE) were broadcast to over 2,000 villages (see *Communication Research Trends*, vol.4 No.2 (1983), pp.1-2). More recently, the Indian government has designed and manufactured the INSAT 1B satellite. It provides educational programmes for schools, rural development and university-level education.

Dukes reports that there are about four hours of programming per day over the Indian network. Some 2,000 villages have simple 3.5 metre wire mesh dishes to receive the signals. Each local community is provided with a 'trained TV custodian'. Specially prepared programmes are produced by the Central Institute for Educational Technology in Delhi and also by institutes in the states.

Eleven countries in the Pacific are served by the University of the South Pacific. Its main campus is in Suva, Fiji, and it has extension centres on other islands. Using INTELSAT, as well as radio and terrestrial telephone lines, courses are provided for students using interactive audio-lectures, with the opportunity for students to question lecturers and discuss the material with them.

The University of the West Indies provides a similar service to centres in different Caribbean countries. Like USPNET it uses INTELSAT and telephone, radio and microwave links.

Bates concludes that it is essential for teachers and educational managers to be involved in the planning and design of satellite education projects from the start. In addition, satellite projects need to be treated as part of a total education system, as many other technologies from radio, cable TV and telephones to print and audio cassettes may be involved.

Another major conclusion is that the main use of satellites in developing countries should be for audio conferencing. This allows for a high degree of two-way communication and is much cheaper to produce and transmit than broadcasting. However, since audio conferencing tends to be limited to a small number of sites it does not reach the large numbers of people that broadcasting can serve. Bates also believes that developing countries could consider experimenting with the use of satellites for electronic mail and text transfer. Because of its high cost television should be used only when adequate production and reception facilities are available. If television is used, priority needs to be given to indigenous programming wherever possible.

The final recommendations of the Bates report urge that a feasibility study look into the possibility of establishing a Commonwealth inter-institutional communication network for education.

#### **Project Share**

Project Share was inaugurated in January 1985 by the international satellite consortium INTELSAT and the International Institute of Communications. The idea was that, over a three year period, free use

of INTELSAT's international satellite network – using spare capacity – would assist in projects for long-distance health care and education.

Projects have included experiments with video conferencing, broadcasting of televised lectures, distribution of slow scan TV, interactive voice and data links, and the exchange of news and information, according to Duke.

Project Share, which ended in 1988, has been followed by Project Access, which is intended to lead to the development of new health and educational applications.

The IIC report on Project Share concludes that the most successful projects have been those involving the simplest technology. Projects which involve expensive equipment and extensive planning, such as those using full broadcast television, usually ended after the Project Share period. The IIC report, like Bates (1987), also emphasizes the possibilities opened by satellites for genuine two-way communication.

#### **Olympus: European Distance Education by Satellite**

In July 1989, the European Space Agency (ESA) launched a communication satellite called Olympus. This satellite is the second experimental satellite launched by ESA. The first was a commercial satellite experiment, ten years ago, which led to a whole generation of commercial satellites. Planning for Olympus began immediately after that launch, and it has been able to benefit from the experience with commercial broadcasting via satellite. Of the satellite's two direct-broadcast channels, one will be used by the Italian network RAI for direct broadcast service to Italian homes. The other will be available for direct broadcast services to Northwestern Europe and to some parts of Eastern Europe. Its uses are limited to scientific and public service, rather than commercial, applications. Its peak-time hours are to be used for a pan-European public service channel. The remainder of the time has been made available to educational and other users, who have set up an organization, called the Eurostep Foundation, to negotiate with the European Space Agency. Eurostep, in turn, has member groups, such as the Ecumenical Olympus Network (EON), a group of church-related groups and individuals from different European countries who have secured 25 hours per year of broadcast time for religious educational programming. EON members are currently exploring with their denominations ways to use the time most effectively.

#### **Channel E**

The European Institute for the Media (EIM) and three associated organizations plan an experimental series of educational and training programmes using the commercial ASTRA satellite starting October 31st 1989. The initial 104 hours of programming is intended to identify potential users and to serve as a pilot study for a possible permanent European educational and training satellite television service in the future (*Media Bulletin*, 1989)

## VIII. Broadcasting for Socio-Political Change

Many people working with and analysing broadcasting for development are aware that most of the usual approaches such as extension services, listening groups, etc., do not touch the more fundamental causes of rural poverty. The well-known 'Green Revolution' is often cited as a case of successful communication of technical information. In fact, in India, it was felt to have increased poverty and unemployment because it channelled information to the rural élites, making the rich richer. The poor were unable to take advantage of it. In this view, the key problem of most conventional development communication is that it is not based on an analysis

of how local power structures control channels of information and define what is 'valid' information in terms of their own interests. Many would argue that the priority is a type of communication which helps the poor to form an organized independent power base and an alternative network of communication controlled by the poor themselves (McAnany et al, 1981).

Many grassroots social action movements feel that broadcasting is a medium too 'visible' and vulnerable to élite control, and these movements prefer to work through small, 'people-controlled' forms of media, such as group media, the alternative press and

people's theatre. Also, in many parts of the world such as India and Africa, broadcasting is the preserve of central governments which are themselves élite controlled. An exception to this is Latin America, where most countries permit private holding of broadcasting licenses under general government regulation. Bates and Jamison and McAnany cite the case of the radio stations of the Catholic Church in Latin America as an example of the use of broadcasting for raising socio-political consciousness and helping the less powerful form an independent, organized power base (Bates 1984: 72; Jamison and McAnany, 1978: 78-85).

Since the 1950s the Catholic Church has made a major commitment of personnel and resources to non-formal education and organization among the rural and urban poor, especially where government services are lacking. Official statements of the Catholic Bishops in Latin America have defined action for social change as essential to Catholic religious faith. Although the Church is supporting a great variety of grassroots organizational efforts, the success of the ACPO model of radio schools led many dioceses and Catholic groups to give priority to educational radio. A recent survey by the Latin American Catholic Broadcasters Association reports that there are now about 350 local radio stations directed under Catholic auspices, and the majority carry some formal or non-formal educational programming.

Many of these educational radio stations began with basic literacy and numeracy programmes. There was increasing awareness, however, that literacy is not just the capacity to interpret written symbols but is a functional characteristic of those who participate in social decision making and exercise social power. Thus, to make basic education functional and not quickly lost, the possibility of entering into organizations which give the poor the power to participate in local and national decision making had to be opened up.

The function of the radio schools and educational radio stations was changed from being a channel of technical information for productivity to being the communication network of people's

organizations. Such a network typically consists of community development councils, women's organizations, co-operatives and peasant or employee pressure-groups, all linked together in regional and national federations. A regional leadership training centre and regional radio station serve as the centre of each regional communication network. In many countries such as Bolivia and Guatemala, the radio stations have formed national federations which function as a kind of alternative news agency channelling to each of the people's radio stations information that would not ordinarily be voiced by other media. Some of these organizations have links with political parties, but the directors of the educational activities more directly associated with the Church have avoided any specific political affiliations. About 40 of the 50 affiliates of the Latin American Federation of Educational Radio (ALER) and another 40 or 50 radio stations of the Church in Latin America have clearly defined their major objective as reinforcing the organizational capacity of popular movements and promoting long-term socio-political change.

Normally, these educational stations carry on a steady work of agricultural, health, and other forms of basic education. This is always combined with the Freirian consciousness-raising methods. The stations make a great point of being 'participatory', giving time slots to various organizations, maintaining neighbourhood-level reporters of alternative information, and fostering local artistic and cultural expressions. Some of the stations are owned and managed by people's organizations with Church personnel providing only a minimum of outside guidance. Many of the stations measure the success of their work in terms of very long-term, slow growth of organizational capacity. At moments of crucial national confrontation on issues of justice the radio stations belonging to federations will unite in strong campaigns whose influence is often quite perceptible. In general, however, most station directors would see themselves as simply one factor in a complex socio-political process.

## Perspectives

It should be clear from the above description of different uses of broadcasting for educational purposes that 'effectiveness' depends very much upon the particular objectives and conditions of each educational task, as well as ideological or other a priori criteria imposed by the evaluator. The cases illustrate how educational uses often have inspired some very creative adaptations of the broadcast medium. Some of the circumstances of these adaptations are unique, but the cumulative experience does suggest some broad guidelines for effectiveness.

### Multi-media Package

The first of these guidelines is that broadcast instruction generally proves to be most effective as part of a multi-media package. Such a package might include varying combinations of printed texts, direct tutorial guidance either individually or in groups, audio and video cassettes, group discussions and the supportive network of family and community organizations. Bates notes that in some cases of 'continuing education' through general broadcasting – which presupposes a fundamental education – broadcasting may be the only medium, but in that case it must be designed as a self-contained educational process.

The fact that broadcasting is part of a combination of media means that programming must be designed so that it is mutually interdependent and supportive of other media. Students themselves

should understand how to use the broadcasts in relation to other media. For example, if a documentary broadcast is meant to help students apply textbook principles to life situations, then some type of guiding instructions on the use of the broadcast should be built into the programme itself. Also, those designing the instructional process should be clear what is the contribution of each medium to the total educational process and how this contribution is made.

### Entertainment Potential

Broadcast instruction is more effective when the affective and imaginative potential of broadcasting as entertainment is more fully exploited. In radio, the use of multi-voice dialogue, frequent questions, change of pace and sound effects of dramatization; or the insertion of music all exploit the affective dimension of the medium. The personal intimacy of the voice may be able to provide the emotional support necessary for distance education.

Many studies have shown that broadcasters generally overestimate listeners' background knowledge of topics and their ability to grasp the more abstract principles that are implied in educational broadcasts. Bates cites the earlier study by Trenaman (1967) which showed that programmes which were concrete were more comprehensible. Concreteness, or the direct perception of things, was introduced by personification, making the personal lives of individuals the subject, and by dramatization. A high degree

of personification and dramatization considerably improved the intelligibility of programmes, particularly for those of low occupational and educational status. Even very abstract ideas can often be communicated to wide levels of the population through some element of personification and dramatization.

### Motivation and Identification

The planning and presentation of distance education which uses broadcasting must be carefully based on the motivations and identification of students, because so much of the study process and careful attention to broadcasts depends on the personal options of the students. For example, the educational programme of Radio Santa Maria openly promoted the value of its certificates for upward mobility and used the students' payment of a token sum of money each week to the auxiliary field teacher to motivate field teachers to recruit students. Although RSM built in community-service motivations as part of the instructional package, it was felt that unless students persevered there would be no educational process at all. Other radio school systems reject this individualistic motivation and insist on community service as the prime motive. Much depends on a careful analysis of the cultural context of the students.

### Training of Teachers and Field Support

Where the effectiveness of the broadcasts depends on the use and application by local classroom teachers, field auxiliaries and monitors or group discussion leaders, then the training of teachers and field support are essential. Often an initial mistake is to think that the effectiveness of the project is in the broadcast alone – echoing the 'fallacy of the powerful media'. The radio mathematics teaching project in Nicaragua foresaw this problem and designed the programme so that relatively little depended on the local teacher. Other radio schools in Latin America have depended very much on local monitors, and the radio school process has failed in many places because good monitors were not available or were not well trained.

### Dedication to Distance Education

In order to make students' needs a priority it is important to have a teaching staff and a broadcasting institution totally dedicated to distance education. The open universities have benefitted by being associated with professional broadcasters, but tensions exist between the demands of the broadcasters' primary commitment to their general audience and the needs of the relatively small number of students. The radio schools in Latin America, although often suffering from a lack of professional qualifications, gain by having control over the prime radio broadcasting time on stations that are generally popular, as well as by having the services of a totally dedicated staff. On the other hand, the earlier distance education campaigns and programmes initiated by education ministries and structured around conventional classroom teaching failed more often than they succeeded. More recent projects, especially those with a dimension of interaction between studio and classroom by telephone or radio, promise to overcome this difficulty, to some degree. They, too, nevertheless require a reorientation of the classroom teacher to bring the broadcast component as fully into the students' consciousness as the classroom component. It is doubtful that such a reorientation can be realized in many cases.

### Community Support

Non-formal and distance formal education programmes generally benefit by having the support of an infrastructure of community and other local organizations. Formal education is maintained by its social necessity and by its compulsory nature. Virtually all successful programmes of non-formal education, such as the English programme in Sweden, owed much of their success to local organizational promotion and recruiting.

### Critical Awareness

Most democratically conceived distance education programmes, especially those using broadcasting, have a built-in dimension of critical social and political awareness-raising. The planners of such programmes often feel that they would be doing a disservice to their students if they did not include that component. It is important that students see that both education and broadcasting are a co-optation into the structure of a democratic society. This is true with educational broadcasting for children, but it has even greater immediacy in adult educational broadcasting. Unless students understand something of this their education will not be a growth in personal freedom and will not equip them to use their new-found knowledge creatively.

### Research Component

Virtually all the effective distance education institutions using newer media have seen the importance of having a research component accompanying the development of their instructional programme. Education using a combination of media and attempting to respond flexibly to student needs is a far more complicated process than classroom instruction alone. Less can be assumed safely, and constant research monitoring of the results is necessary. Expensive equipment raises the financial risks, but experience to date suggests that the pay-off of well-designed projects in extending better quality education to more people, is well worth both the risk and the effort.

Robert A. White  
Pradip Thomas  
Issue Editors

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## Current Research

### Argentina

**Maria Mata**, of the Univ of Cordoba (Calle Obispo Trejo y Sanabria 242, 5000 Cordoba), is preparing a book on popular radio (*radio popular*) in Latin America, including analysis of its non-formal educational programmes.

### Australia

**Roy Lundin** is co-ordinator of the Communication and Information Technology Group at Brisbane College of Advanced Education (Kelvin Grove Campus, Victoria Park Rd., Locked Bag No.2, Kelvin Grove, Q 4059).

### Great Britain

**Janet Jenkins** (International Extension College, Office D, Dales Brewery, Gwydir Street, Cambridge CB1 1LJ) has completed background research on the state of distance education in the Commonwealth.

### India

**Binod C. Agrawal** (Development and Educational Communication Unit, SAC PO, Ahmedabad 380 053) is supervising part of the evaluation of the new 'Countrywide Classroom' offering through TV university-level courses in science, art and commerce.

### Japan

**Takashiro Akiyama** (Broadcasting Culture Research Institute, Japan Broadcasting Co. (NHK), 2-1-1 Atago, Minato-Ku, Tokyo 155) is carrying out a nationwide survey on the utilisation of educational TV, research on distance education through TV and radio in Japan, and formative research for a new children's TV programme.

**Sachiko Imaizumi Kodaira** (Broadcasting Culture Research Institute, Japan Broadcasting Co. (NHK), 2-1-1 Atago, Minato-Ku, Tokyo 105) has recently done studies on educational TV for pre-school children.

### Kenya

**Paul Wangoola** is Secretary General of the African Association for Literacy and Adult Education (PO Box 50768, Nairobi), a clearing house for information on educational research in Africa.

### Nigeria

**C E Ezeani** (Correspondence and Open Studies Institute, Univ of Lagos, PO Box 56, Akoka, Lagos), currently vice-president of the African Assoc for Distance Education, has focussed his research on evaluation procedures for science teaching in distance education systems.

### Sweden

**Susan Forslund**, of the Swedish Educational Broadcasting Corp. (S-115 80, Stockholm), is researching the multi-media *Handle With Care* children's programme, which involves the exchange of packages of their own creation among children in schools in Sweden, the Netherlands, the United Kingdom, Norway, Denmark and Venezuela. The Swedish Educational Broadcasting Corp. co-ordinates the programme.

**Birgitta Höijer** (Audience and Programme Research Dept, Swedish Broadcasting Corp, S-105 10 Stockholm) is studying the process by which adults assimilate and cognitively process expository radio and TV programmes.

### United States

**The Academy for Educational Development** (1255 23rd St NW, Washington, DC 20037) conducts a 'Rural Satellite Program' to study distance education in rural contexts.

**Dennis Foote** (Applied Communication Technology, 1010 Doyle St. Suite 17, Menlo Park, CA 94025) has been doing large-scale evaluation of USAID projects on the use of media in health and agricultural education.

**John Mayo** (Learning Systems Inst, Ctr for International Studies, Florida State Univ, Tallahassee, FL 32306-4041) has been helping evaluate the Radio Education Teacher Training programme in Nepal.

**Drew Tiene** (College of Education, Kent State Univ, Kent, OH 44242) recently completed a World Bank publication entitled, *Educational Media in Retrospect* (with **Shigenari Futagami**), which examines the critical difficulties associated with the large-scale educational broadcasting projects which have been attempted in recent decades.

### International

The European Broadcasters' Union plans to sponsor a meeting of select scholars in the field of educational broadcasting research in Tel Aviv, Israel, in March, 1990, on the theme, 'Whether research can strengthen educational broadcasting, and, if so, how?' Factors to be considered will include the implications of the political environment for educational television, the state of the art of educational TV services and related research activities, the contribution and effectiveness of educational TV according to research findings, formation of a policy on research strategies and research politics, the agenda for research during the next few years.

### General

Most broadcasting systems, of course, conduct some form of in-house research, which varies widely, from system to system, in sophistication and scope.

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