Until the invention of printing, the cheapest way to pass on learning – from one person to another, or from one generation to another – was by human contact. Schools, where one educated person could teach thirty, or fifty, were a convenient way of providing education to an elite. Most people, in contrast, have from the beginning of time learned how to manage their lives informally, from their parents and grandparents, from their elders, and from their fellows. Informal, though sometimes highly structured, systems of education have provided most of the world’s population with the education they need to exercise the degree of control over their environment normal to their culture. Such informal systems have proved adaptable to changes in culture; it was, for example, through informal networks of information and education that African peasant farmers a thousand kilometers from the coast had learned to grow and use maize as a staple crop within a century of its introduction from America.1

But, over the last century, changes in technology and in communications have made it far more difficult for informal systems to provide people with all the education they need or want. Parents throughout the world have viewed formal education as a route to mastery of twentieth-century technology and to increase wealth. Even though only a few children will work their way through the educational system, huge numbers begin, reasonably and hopefully, because the rewards at the end are so great. In Uganda, for instance, in the late 1960s, the ‘graduate just entering the civil service could expect his income to be fifty times the average income per head.2
The demand for school places is beginning to outstrip the capacity of many economies to supply them. At the same time, technical changes in medicine, in agriculture, and in engineering mean that new ways of living are open to many adults—but may be open only if they have received some relevant education. This double demand, for schools and for adult education, puts a strain on educational systems that few can bear. The scale of the demand has led to a search for alternative methods of education that can reach more people, or reach different people, or do so more cheaply. Distance teaching offers some of these possibilities.

In Tanzania, for example, an educational campaign using radio, print and group discussion meetings has been used for health education directed towards millions of adults. Only non-traditional techniques made it possible to work on such a scale. At a quite different level of education, the Open University in Britain provides courses that combine correspondence lessons, tutorial help, broadcasts, and summer vacation courses to adults who can qualify for a used over forty years in the Soviet Union, where it is normal for students to do part of their degree full-time and part by correspondence. In all five continents, correspondence methods have been used to help with the in-service training of teachers, called upon to teach beyond the limits of what they themselves learned at college, if they ever went to one. Ministries of education are attracted to a method that allows teachers to be retained without being removed from the classroom. At the same time, attempts have been made to use distance-teaching methods to support and improve teaching within schools. In Nicaragua a new mathematics curriculum is being introduced to schools by means of radio programs with supporting printed materials, while in Mauritius distance teaching methods have been used to improve inadequate secondary schools.

The variety of jobs attempted through distance teaching makes a neat definition difficult but, for the purpose of this book, it can be taken to mean an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner. In practice, distance teaching usually involves a combination of media. The more effective programs seem to benefit from linking broadcasts and print with some kind of face-to-face study. As a result, it is difficult to draw sharp distinctions between traditional education and distance teaching. At one extreme, a distance teaching program using radio and correspondence lessons may teach students who never meet a teacher and have little or no contact with the regular educational system. At the other, distance-teaching methods are used to support schools and to supplement the ordinary work of classroom teachers. Indeed, it is often valuable to distinguish between the in-school and out-of-school use of distance teaching—that is, between its use to support teaching where students come together at least several times a week and its use to provide teaching for students who meet only once a week or even less often. But, despite the blurring of the distinction, a concentration on the use of centrally prepared materials does mark distance teaching off from orthodox education.

Distance teaching attracts the economist because it uses mass-production methods, which change the structure of educational costs. With traditional classroom methods, the costs of education rise in proportion to the number of children being educated. When every thirty or forty children need a teacher and a
classroom, salaries and buildings swallow up most of an educational budget. Few economies are possible, unless quality of education is sacrificed. With print and broadcasts, however, the marginal cost of each additional student is very small. Indeed, if radios are widely distributed, it costs no more to broadcast to a million students within reach of a transmitter than to a hundred. In theory, then, distance teaching can bring economies of scale to education.

The essence of distance teaching

In a sense, the development of the printed book allowed student and teacher to be separated. Before print, books were dearer than teachers: print’s threat to their livelihood led university teachers in Salamanca to protests in the sixteenth century. And, especially since the nineteenth-century development of cheap paper, the West has had a minor but important tradition of the self-educated man who has acquired learning from books rather than from teachers. But this is very much the exception, and most students need the support of an institution—whether it is a school, a learning group, or even a correspondence college. More important in the history of education is the use of books within an institution. Indeed, the use of textbooks by children in a classroom implies that they are learning from a distant textbook writer rather than from the classroom teacher who is with them. It is legitimate to ask whether there is anything more to distance teaching than the provision of textbooks, whether it can do more than would be achieved by the universal establishment of public libraries.

In practice, distance teaching differs from simply publishing and distributing books in three ways: in its use of a variety of different media, in its structure, and in its system for feedback.

Where possible, distance teaching projects have used more than one medium in an attempt to balance the advantages and drawbacks of each and to provide reinforcement. Studying by correspondence alone, for example, is almost a byword for boredom. Radio programs to support correspondence lessons offer a stimulus and a sense of personal concern to an isolated student. At the same time, the content of the radio program can reinforce the content of the print, and it may be possible to use each medium to present that part of the content for which it is most appropriate. Poetry, or mathematics for that matter, can be explained better if the text can be heard as well as seen. Radio conveys conviction or excitement more easily than print, although the permanence of print is essential if one wants to be able to refer back to what has been said. And, if we can use some sort of face-to-face study along with print or broadcasts, then we can aim for the best of both worlds—the economies of mass production together with the humanity and individualism of personal contact.

The need to use a number of different media has led in turn to a concern with structure in distance teaching. In writing a book, an author can dodge questions of structure or can select the structure that he finds intellectually most rewarding. If, on the other hand, the objective is to produce a package of materials that will teach effectively, then we are forced into thinking about the structure of the
content and the structure of the media – the way in which the different media will relate to each other. The criterion then becomes educational effectiveness: the best course is the one that teaches most effectively. Experience suggests that the most appropriate structure for distance teaching differs greatly from that of an orthodox book. Whereas the function of most books is to present the author’s view, the function of distance teaching materials is to stimulate the student to activity that will enable him to learn. The particular structure adopted will probably vary from subject to subject and from course to course. But a common feature of many distance teaching programs is that the information presented to students is closely bound up with directions to them on activities they should undertake. Material offered to a student in the absence of a teacher needs to be structured in such a way that it encourages the student into learning activities that go beyond passively reading or listening or watching. The development of an appropriate structure makes effective distance teaching possible; it also sharpens the distinction between it and the regular production of books or broadcast programs.

Good distance teaching also depends on a system of feedback. No matter how carefully educational materials are prepared, they will not meet the needs or answer the problems of all the students for whom they are intended. A system of feedback enables students who have problems with the pre-prepared material to receive some help; it also enables the producers of distance teaching materials to assess how far they have been successful in what they were trying to achieve. Feedback is necessary both for learners who cannot otherwise overcome their learning difficulties and for teachers who cannot otherwise see how effective their teaching has been. Beyond that, there are ideological reasons for stressing the importance of feedback: unless it is built into the system, the hidden curriculum of a distance teaching system is that the educator already possesses all the knowledge relevant to the student, and the latter’s knowledge and understanding is of no importance to the educator. Feedback, though hard to organize, is the way of building dialogue between student and teacher into a distance teaching system.

If distance teaching is well structured, using a variety of media and providing for feedback, then it offers a method of education different from that of an orthodox school and different, too, from the simple distribution of educational materials. Potentially, it allows education to be extended to people who cannot get to school for one reason or another. Distance teaching has also been used to support the orthodox educational system – directly, by providing courses for use in school; and indirectly, by enabling the in-service training of teachers.

Distance teaching has received most public attention because of its potential to offer students outside institutions programmes of education equivalent to those available within institutions.

Such attention has increased dramatically over the past few years. In discussing innovations in higher education with the United States, for example, the Commission of Non-Traditional Study commented:

Few innovations in higher education have met with more ready acceptance by a diversity of people and institutions than non-traditional
The Scope of Distance Teaching

study and its various forms—external degree, Extended University, Open University, University Without Walls, and others. Although the movement that gave birth to these models and plans is difficult to define with any precision, people share a common understanding about the nature of this new concept of education. Its greatest departure from traditional education is its explicit recognition that education should be measured by what the student knows rather than how or where he learns it. Beyond that it builds upon two basic premises—that opportunity should be equal for all who wish to learn and that learning is a lifelong process unconfined to one's youth or to campus classrooms.4

But distance teaching's value for equivalency programs is not limited to post-secondary (tertiary) education or to the rich world. Historically, it has offered equivalent routes for those seeking qualifications through part-time study; more recently, it has been adopted as a way of offering equivalency programs outside regular schools in many countries of the third world.

Developments 1880-1980

Distance teaching began with a concern to reach individuals who could not attend regular classes. In Sweden, for example, in the 1880s, Hans Hermods, a teacher of bookkeeping, continued to teach a student who moved away from his own town, by sending lessons through the mail. About the same time, an English teacher, William Briggs, who already ran a tutorial college, began to offer instruction by mail ('tuition by post') for students who could not attend. He went on to christen his institution grandly University Correspondence College, make much of its address in Cambridge, and employ HG Wells as a tutor. In the United States, the notion of a land grant college with a campus extending to the state boundaries led American universities to offer correspondence courses from the 1890s. In all these cases, and in comparable development in Europe, the concern was to reach students who were isolated from regular institutional teaching and to try to compensate for some of the disadvantages of isolation.

These early attempts at distance teaching relied heavily on an efficient postal service and on a high level of student motivation. Radio was not yet available; distance and long working hours made correspondence the only way many isolated students could get education. In their isolation, they needed to be tough and single-minded to keep at their work. While correspondence provided them with some sort of educational opportunity, it was not of sufficient educational significance to attract the attention of educational planners.

In the late 1920s, the Soviet Union adopted distance teaching for a different purposes—to increase the output of the educational system. Earlier correspondence projects elsewhere had contributed slightly to the educational system, insofar as they produced graduates at one level of education or another. But their mainspring was a concern to offer something to small groups of disadvantaged students. By contrast, the USSR, desperate for educated manpower, saw correspondence as a way of expanding the educational system beyond the limits imposed by the shortage of teachers. Since 1929, correspondence education has formed a significant component in the Soviet educational system. Many universities have correspondence sections, and there
are some fifteen external polytechnic institutes that teach both part-time and correspondence students.

In contrast with the West, distance teaching in the Soviet Union has been closely integrated with the regular system of higher education. Students can transfer between full-time, part-time, and correspondence courses as they work towards a degree or technical qualification. Even students who are working by correspondence for the whole of a six-year professional course attend their polytechnic institute once or twice a year for full-time practical laboratory work, lectures and examinations. They are granted paid study leave for these sessions, and their fares are paid. At the end of a six-year course, such students attend their institute full-time for four months of intensive project work. The Soviet distance teaching system is also integrated with industry; students are encouraged to follow courses relevant to their work and, in technical courses, to do practical exercises and projects at their place of work. The polytechnic institutes offer courses for which there is a demand from industry. The combination of correspondence teaching with face-to-face practical and laboratory work has made it possible for the Soviet Union to use distance teaching for technical education on a significant scale. What was adopted as an expedient to meet a temporary shortage of skilled labour has now become a well-established part of their system of higher education.

Otherwise, the methodology of distance teaching developed more slowly. From the mid-1920s on, radio was used to support education in schools. In Britain, for example, 10,000 schools had radios by 1939. But, while correspondence had been seen primarily as a way of offering education outside school, radio was seen mainly as a support for classroom teachers. There were two important exceptions to this. In the early 1930s, several thousand listening groups were formed in Britain; they listened to adult education broadcasts and went on to discuss them. The movement faded away, however; antagonism on the part both of orthodox adult education agencies and of those who saw the listening groups as dangerously left wing contributed to its disappearance. But the idea of an adult listening groups survived and led to farm radio forums, first in Canada and then in India and Africa. The other unusual use of radio came in New Zealand, where from 1937, radio programs were linked with correspondence education. Curiously, their example was not to be followed by the United States, Britain, France, or the Federal Republic of Germany – which all had both correspondence and broadcasting organizations of one sort or another – until the mid 1960s. Then, a series of projects began that attempted to link the three components of broadcasting, correspondence and face-to-face instruction.

Distance teaching in the developing world

In the 1960s, many developing countries were beginning to look for unorthodox solutions to the educational problems they had inherited. In many African countries, for example, it was clear that the expansion of schools, within the limits imposed by finance and by the supply of teachers, could not meet the demand for education, even within a generation or more. Thus, the experience of multimedia distance teaching, which was only just being acquired in the rich countries, was seen as immediately relevant to the educational needs of the third world. The
The decision to use distance teaching to meet some of the demand for more education was closer to the experience in the Soviet Union in the 1920s than to that in Britain or America. Distance teaching was seen not as a device to offer an alternative route to education for a small disadvantaged minority, but as a resource that should be used on a large scale because of the economies it seemed to offer in terms of teachers and money. The pressure on other educational resources made distance teaching look attractive. As a result, attempts have been made in the third world to use distance teaching for all levels of education, from supporting literacy teaching to offering university degree courses.

The big exception is, perhaps, in the most important area of all: there has been little success in using distance teaching to offer primary education. It seems fairly clear that young children need some type of formal institution like a school if they are to learn an orthodox basic curriculum effectively. Although a few attempts have been made to support primary school teachers in the classroom, the help that distance teaching can offer to the most basic education does not lie in creating an alternative to the regular primary school. Rather, it can help by providing a basic education to adults out of school and by offering in-service education to primary school teachers. The numbers of children seeking to enter primary school are dwarfed by the numbers of adults who never went to school, or who did not complete their school course. And nowhere in the world would it be realistic to contemplate sending all under-educated adults back to school. The costs of taking people out of work, let alone the direct costs of the education program, would make this impossible.

Adult education

Attempts have been made to use distance teaching to provide education for adults on a part-time basis, whether they are literate or not. Such attempts have usually involved group study. If a group of adults has one literate member who can be supplied with teaching material to read, and stimulated by a radio broadcast, then he can lead a discussion in which literates and non-literates can both participate. Adult learning groups have been set up in at least three different ways. First, radio forums go back to the forum movement of Canada, which adopted the motto ‘Listen, Discuss, Act’. They have, for the most part, been concerned with agricultural education, using a weekly radio program designed to stimulate group action toward better agriculture. In West Africa, in particular, government-backed forum organizations have been set up to provide information and support forums, and to plan new programs in the light of feedback. In Senegal, the use of feedback has been taken one stage further. Here, radio clubs have been deliberately used as a channel for peasant farmers to make their views known to the central government. For the most part, however, forums have dealt with basic agricultural education and have not extended their interest more broadly to education for adults.

A quite different approach to group learning has been attempted with radio learning campaigns in Tanzania. Whereas radio forums are social organizations that remain in existence for many months or for years at a time, the radio campaigns are short and occasional. In each campaign, the largest possible
Growth and Innovations: Glimpses-I

Audience has been enrolled in study groups. The whole apparatus of the adult education movement and the political party organization has been used in Tanzania to set up groups, train group leaders, and deal with feedback from them. The subject matter of campaigns has varied from political education to basic health, but their consistent aim has been to use distance-teaching networks for basic education aimed at a large proportion of the adult population.

In Latin America, a third approach to group study has been tried through the radiophonic schools, set up first in Colombia in 1947 and later copied widely in Central and Latin America. Acción Cultural Popular (ACPO) of Colombia saw radio as the one way of reaching an audience of peasants. With strong backing from the Roman Catholic Church, ACPO developed a system of producing books and broadcasts in basic education and supported that central activity by deploying a field staff to encourage the formation of radio schools, or learning groups. The groups are most often members of a single family, and courses may be followed by adults and children together. The curriculum of many radiophonic schools attempts to be both formal and non-formal – to reconcile the curriculum of the formal education system with the day-to-day interests of its students, usually peasants and their families, often dependent on subsistence agriculture.

All these methods demonstrate that distance teaching can do something to provide basic education for adults. But, despite their successes, the various projects do not amount to a regular system of education for adults analogous to the formal system of education; they do, however, point the way toward future basic educational programs. Although evidence about their effects and about their costs is scarce, it is sufficiently encouraging to say that under certain circumstances, distance teaching is an appropriate tool for basic education for adults.

Teacher training

Distance teaching can also help with the primary education of children although less directly. As C.E. Beeby suggested in his classic analysis *The Quality of Education in Developing Countries*, the educational background of primary school teachers is the major constraint on the quality of education they can offer. In many countries of the third world, the demand for primary education has outstripped the supply of trained primary school teachers. Untrained or under-trained and uneducated teachers have been pressed into service. Their own lack of education holds back the quality of what they do in the classroom:

>The teacher in a village school who has himself struggled only to a doubtful Grade VI or Grade VII level is always teaching to the limits of his knowledge. He clings desperately to the official syllabus, and the tighter it is, the safer he feels. Beyond the pasteboard covers of the one official textbook lies the dark void where unknown questions lurk. The teacher is afraid of any other questions in the classroom but those he himself asks, for they are the only ones to which he can be sure of knowing the answers.5

And yet, even hesitant, under-educated teachers are doing an indispensable job;
without them the schools would close down or would make do with teachers even less educated. While the proportion of untrained teachers in an educational system should decline as more trained teachers graduate from colleges of education, the process is slow. Many educational systems will employ untrained teachers for generations to come. At the same time, the content of education will continue to change, rapidly and inexorably. To improve the schools, in-service teacher training is vital.

Distance teaching has been seen as a way of providing in-service education to primary school teachers on a large scale. Its attraction is that the teachers are not taken away from the classroom while they study. If vacation courses are linked with correspondence lessons, radio broadcasts, and some supervised classroom practice, then it is possible to make qualitative improvements in the work of primary school teachers. Indeed, there may be advantages in using in-service training rather than pre-service training, as H W R Hawes of the London Institute of Education has suggested:

First of all, the conventional idea of a course in a teacher-training college, followed by teaching practice or short spells in one or two schools, is no longer the only practical way of organising teacher training. Teachers are now being trained in sandwich courses where the student teachers teach full-time for one school year and follow courses in education at a training college at other times, mainly during the vacations. There is a growing number of projects for in-service training of unqualified teachers where correspondence courses are combined with residential courses ... I am coming to believe that a curriculum reform project run in harness with an in-service programme would have considerable advantages.

An in-service course of this kind requires two different jobs to be done. The longer, more difficult job is to provide a complete training for teachers, not only raising their own academic subject knowledge but also attempting to improve their classroom teaching. This has been the aim of teacher-upgrading projects in, for example, the Middle East refugee camps, Swaziland and Sri Lanka.

A second, more modest, attempt is to provide a general education to teachers, making up for some of the schooling they lack. This is a simpler job because it does not involve the severe problems of teaching, at a distance, about classroom teaching. And, if the basic education of teachers is so weak that it reduces their effectiveness and imaginativeness in the classroom, then to improve that education is clearly important. This has been the rationale or the use of correspondence and radio at, for example, the University of Nairobi, Kenya.

The Kenyan Correspondence Course Unit

After independence in 1963, demand for education in Kenya grew rapidly; the number of children in primary school doubled in twelve years. The demand continues to grow, even though primary school qualifications no longer guarantee a paid job. Access to a good job in the modern sector of the economy now depends mainly on the possession of a certificate from secondary or tertiary education – but access to secondary schooling depends on the successful completion of primary school. The demand for primary school places has thus
outdistanced the production of primary school teachers through orthodox pre-service training. In 1964, therefore, the Kenyan government began to explore the idea of using radio and correspondence to train unqualified and underqualified teachers. A Correspondence Course Unit was set up within the (then) University College with this as its major task. With financial support from the US Agency for International Development (AID), a team from the University of Wisconsin worked with Kenya in starting the unit.

The unit now has ten years of experience teaching adults at a distance throughout Kenya. Its courses are in the major school subjects and each consists of four elements. Students receive the regular textbooks used in schools and correspondence notes, which provide the teaching and explanation needed to make the textbooks effective when used by the isolated student in his own home. Radio programs are broadcast to support the correspondence lessons. Each lesson includes work assignments for the students, which are marked by a postal tutor who provides individual guidance to the student. The unit makes limited use of occasional residential sessions to back up its distance teaching methods.

The unit has two major programs – one leading to the Kenyan secondary school certificate, and the other leading to a qualification for unqualified teachers. The programs have the same aim: to provide an improved general education to teachers. They are intended not to provide education about teaching – to teach teachers how to teach – but rather to improve their own background knowledge. The unit seems to have been successful in achieving that limited aim in that some 7,500 teachers were promoted over a six-year period after following the unit’s courses, and more than 3,000 subject passes were obtained by students in the secondary-level examinations. But detailed figures are not available to compare the unit’s costs with those of alternatives, or to examine the unit’s drop-out rates. While there may be no alternative to distance teaching as a means of in-service training – short of temporarily closing down the primary schools, which would be politically unrealistic it appears that the unit has been working at too small a capacity to achieve the potential economies of scale.

Secondary education

In terms of numbers, the pressures on secondary education in many developing countries are less than those on primary schools. But pressures there are. As primary schools expand, the demand from students and their parents for more secondary school places increases. At the same time, as economies develop, the demand from employers and from tertiary education for greater numbers of well-qualified graduates from secondary school increases. The two sets of demands can conflict with each other: children struggling to get into secondary school are primarily interested in the number of school places, while employers and colleges or universities are at least as concerned with the quality of education offered in secondary school. There is, at least potentially, a conflict between the demand for quantity and the demand for quality.

The principal ways ministries of education have reacted to the pressures on them are the regular expansion of secondary schools and the gradual process of raising
the caliber of secondary school teachers. But distance teaching has been used to help meet the demand for good secondary education in three ways. The way with the longest history is to provide courses equivalent to the regular secondary courses for children or adults outside secondary school. The second is to go one step further and use distance teaching methods for students outside school but to offer them a different kind of education, with a different curriculum related to their particular interests and needs. The third is to use distance teaching to raise the quality of existing secondary schools.

Correspondence courses for secondary-level examinations have been the mainstay of correspondence education since it began. They have provided a small element of flexibility in education, offering a chance of getting qualifications to people who did not have the time to study at school, or lived in a place with no school. This kind of education has been offered by commercial correspondence colleges, by universities, and by government agencies. And, as with the Soviet Union in the 1930s, a number of countries are today using distance teaching not for a handful of exceptional students who cannot get into school, but as a regular ancillary to the school system on a large scale.

The costs

Distance teaching is not necessarily a cheap way of solving educational problems. In some cases, there is no alternative: distance teaching methods may, for example, be the only means of providing in-service training to teachers who cannot be taken out of the schools. Under the circumstances, distance-teaching methods can be cheaper than their orthodox alternatives; this has been shown by studies in which direct comparisons could be made. In the Middle East refugee camps, for example, it was possible to compare directly the cost of producing a trained teacher through pre-service, residential courses and through in-service, distance teaching courses. The cost of the latter was half that of the former. A study of the costs of the British Open University showed that it could expect to produce graduates at a substantially lower cost than the regular British universities.

The evidence from recent studies in this volume is more complex. In both Korea and Israel, distance-teaching systems appear to offer considerable savings over alternative methods of extending education to adults outside school or university. In Mauritius, the use of distance teaching to improve secondary schools is probably cheaper than alternative ways of making such improvements. But in Kenya, the number of students using the Correspondence Unit is too small for it to show the economies of scale that had been hoped for. The early evidence from Brazil suggests that, where there is a fairly cheap alternative to out-of-school education using orthodox methods, it may be difficult to attract the number of students that will make distance teaching attractive.

Two general conclusions can be drawn. The first concerns the level of education. Usually, the more advanced an educational course, the more the teachers working on it are paid. And, as staff salaries are such a large item in most educational budgets, the total cost of more advanced courses tends to reflect the
higher salaries. (In the case of universities, the expensive equipment and facilities required by the university teachers ensures that their total budget is also high.) In distance teaching, many of the costs are the same regardless of the level at which courses are offered. The cost of preparing courses, or broadcasting lessons, or setting up a print shop does not depend upon the level at which the courses are pitched. It is thus much easier for distance teaching costs to look favourable when compared with the costs of higher education than when compared with secondary or, even more, primary education costs. At the lower levels, larger numbers of students are needed to make the costs of production and equipment look reasonable.

The second point is related. The structure of costs of distance education differs from the structure of costs of ordinary education in schools or colleges. Whereas staff costs generally dominate educational budgets, costs for the production of materials, and for specialized plant and equipment, form a much larger proportion of the costs of a distance teaching project. If, therefore, the costs of distance teaching are to compare favourably with the costs of ordinary face-to-face education, then the staff costs for the face-to-face elements in a distance teaching alternative must be kept down by employing teachers or tutors for a smaller number of contact hours, or by employing less-qualified teachers who will work at a lower rate of pay.

Mixing the media for effective learning

Measuring the effects of education is more difficult than measuring the costs. At least with the formal courses, it is possible to fall back on examination results, and the evidence here is quite consistent. Those who keep working to the end of a distance teaching course have high chances of passing the examination, sometimes higher than if they studied in a more conventional way. The results are naturally affected by motivation. Most students in teacher in-service courses keep working because promotion and increased pay depend on sticking the course out to the end, and they tend to pass their examinations. The evidence from the Korean study shows that, even without the direct incentive, distance teaching is an effective way of preparing for examinations. This confirms results from other countries. In Australia, for example, pass rates in tertiary education are better for students in distance teaching than for those in part-time study and nearly as good as for full-time students. In Britain, the National Extension College has achieved better results in English, using a multimedia course, than the average for all schools. In Germany and Sweden, students in secondary equivalency courses can do better than comparable students following traditional methods.

But many students do not complete their courses, and so never take the examinations for which they were aiming. Motivation differs from person to person, and from society to society. The pressures that lead relatively high numbers of Korean students to complete their courses are quite different from those in many other societies that have adopted distance teaching. Again, it is important to find an appropriate point of comparison for students in distance teaching projects. Often such students begin at an educational disadvantage as compared with full-time students: typically, they come from financially poorer
homes, and often have performed less well at earlier levels of education. This presents a major problem for the researcher. In order to assess the efficiency of distance teaching, we ought to compare its results with an alternative method of education used for the same purpose and with similar students. But it has seldom been used that way. In practice, students of similar social and educational background are seldom offered a choice of working at a distance or through the regular educational system. Far more often, distance teaching has been used as a second-best route for students who have been eliminated, by poverty or examination, from the regular face-to-face system. Given these disadvantages, and comparing their performance with that of other part-time students, it is not surprising that, even in Sweden and the USSR, where distance teaching is well developed, drop-out rates of about 50 percent appear to be normal. The experience in these countries like that in the case studies examined in this volume, confirms that distance teaching can be reasonably successful in overcoming educational disadvantage. But courses leading to formal examinations seldom retain more than one-half or three quarters of those who start them.

The conditions for success

Under certain circumstances, then, distance teaching can be effective in extending or improving education at all levels, for the in-service training of primary school teachers, through the offering of secondary equivalence course, to the offering of university degree courses. At the same time, as with other forms of part-time education, drop-out rates are often high, so that there is a greater difference between the cost per student and the cost per graduate than in much full time, face-to-face education. Where the number of students is small, the cost of producing high-quality learning materials may be so great that the cost per graduate rises above the comparable cost for full-time study. Within these limits, distance teaching is relevant to the twin problems of quantity and quality that beset educational planners around the world. Some conclusions can be drawn about the conditions that need to be met if a distance teaching project is to be successful. The first is about motivation. If you are following a distance teaching course that has no teacher with a custodial role, you can choose to drop out at any time. Unless there is a very efficient and sophisticated counselling service, no one may notice, let alone encourage you to go on. For distance teaching to be effective, in the sense of retaining its students to the end of their course, they need to be highly motivated and to see the relevance of their studies to their own life and their own prospects.

Second, the project must support the student with an appropriate and efficient organization. The scale of the organization has an important bearing on its efficiency, as measured by the cost per student. The variety of specialized jobs within a distance teaching institution creates pressure to employ a range of staff with different skills. As a result, it is difficult to imagine a distance teaching equivalent to the one-teacher school. Similarly, any distance teaching institution needs access to a minimum of equipment for producing and distributing teaching materials and keeping records of its students. Thus, there is a minimum size below which it would be difficult to operate a distance teaching institution. That minimum size demands a minimum number of students if costs are not to be out of proportion.
Third, both practice and theory confirm that there are benefits for good teaching, and for keeping up student motivation, in using a variety of media. Some of the particular strengths and weaknesses of particular media are discussed above but we are still a long way from having a prescriptive formula for the right mix of media. What is already clear is that problems of integrating the media are among the most serious to be overcome if a distance teaching program is to work well. To take just one example, in Korea it has proved difficult to relate what teachers do at their fortnightly Sunday classes with the radio programs, simply because the programs are broadcast at a time when teachers will not listen to them. Difficulties of this kind arise partly because distance-teaching institutions seldom control all their own activities. Broadcasts usually depend, for their timing if not their content, upon national broadcasting organizations rather than educators. Tutors, who run study centres, or study group leaders are often not staff members of the distance teaching institution with which they are working. These are almost necessary difficulties: if distance teaching institutions are to achieve economies by making greater use of teachers or buildings within the existing educational system, then they are forced into sometimes uneasy alliances with other educational bodies. Although the result is administratively uncomfortable, it makes for a more efficient use of national educational resources as a whole.

Fourth, despite these difficulties, the organization of face-to-face study may be the most crucial activity. It is certainly the activity in which economic and educational pressures are likely to be opposed. The educator, concerned to humanize a system of education that depends on mass production, usually wants to increase the face-to-face element in the system. He will be especially determined to do this if he wants to ensure that centrally produced materials will be clearly relevant to the local needs and interests of his students. But part of the economic strength of distance teaching is that it can save on the cost of teachers: there is an economic case for minimizing face-to-face contact, or at least for minimizing its costs.

The future

Finally, there are two unresolved questions: about the role of distance teaching in open learning, and about its future more broadly. Some distance teaching programs, like those of the British Open University and the Israeli Everyman University, have set out deliberately to attract people with limited previous education, and have been open in the sense of requiring no entry qualifications. The belief that there ought to be alternative routes to formal education lies behind the long-established madureza in Brazil and the Air Correspondence High School of Korea. Distance teaching is not necessarily open, in the sense that courses are open to all comers; professional programs of continuing education may be limited to accredited members of a particular profession. But, where courses are open, and are designed as an alternative route to qualifications, the question arises about the extent to which they should resemble regular school programs. Should they aim for equivalency programs, as the madureza does, or should they insist that their students take exactly the same examinations as those in the regular system? Are students better off with a course designed specifically for their interests – which may be regarded by employer or other educators as second best – or with a course less obviously suitable for adults, but leading to identical qualifications?
Questions of status as well as of education are involved.

The second question is broader. Distance teaching has been used to solve educational problems of both quantity and quality, and is seen as a valuable tool in an educational crisis. It has been used to extend education beyond the limits of the school and college system, and to improve the weakest bits of that system. But does it have a permanent part to play, and a part to play in close relation to the regular system? In considering what that part might be—if it exists—it is worth noting the essential nature of distance teaching, where this includes a substantial element of face-to-face learning and a feedback system. In such distance teaching, the subject matter content can be recorded on print or on tape, thus liberating the teacher from much of his traditional role of conveying information and enhancing his role of helping learning. Distance teaching, then, can help toward the Copernican revolution in education for which many have been asking—the concentration on learning rather than teaching. (It will not always do it: correspondence courses can all too easily lend themselves to rote learning, and it would be ridiculous to pretend that distance teaching is a synonym for pedagogic excellence and enlightenment.) But when distance teaching is reflecting the better, rather than the worse, aspects of the regular educational system, its particular qualities suggest that it might have a continuing role to play, not merely in providing an alternative or second-best system of education for hard-pressed countries and sorely tried educators, but in providing a better educational system for all.

Notes

11. TRU, *Distance Education Systems in a Number of Countries* (Stockholm: TRU, 1975), pp. 25, 26.


13. The best exception to this I know is a rural distance teaching project described to me as 'two jesuits in a mud hut with a hand duplicator and a pair of bicycles.' Their program worked, too. Small is beautiful, though sometimes difficult to keep cheap.