Distance education for teacher training

Distance education, combining the use of correspondence texts, broadcasting and limited opportunities for face-to-face study, has been used in at least a hundred teacher-training programmes over the last quarter century. *Distance Education for Teacher Training* is the first comparative review of the use of distance education and open learning for the training and upgrading of teachers.

The book contains case studies using a broadly common format to describe and analyse distance teacher-training programmes in eleven countries across five continents. The case studies describe the methods used to examine how far the craft of teaching can be learnt at a distance. Using a standardised microeconomic framework, they provide unique data on the comparative costs of training teachers by distance and conventional methods. The book then draws general conclusions about the advantages and drawbacks of using distance education or open learning, about the conditions for success, and about comparative costs and effects.

*Distance Education for Teacher Training* will be of value to all concerned with teacher education, whether in developing or industrialised countries, and to those working in distance education and open learning.

**Hilary Perraton** has worked for many years on the administration and evaluation of distance education. He now works in the Education Programme of the Commonwealth Secretariat. The case study authors in this book all have first-hand experience of the projects they describe.
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Edited by Hilary Perraton
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1 The context

Hilary Perraton

Good education demands good teachers. Over the course of the twentieth century, as the teaching profession has grown, so have its standards risen. Many teacher-training courses in rich countries now last for four years and follow after 12 years of schooling: teachers have now had four more years of full-time education than used to be the norm. Society has steadily expected more of teachers in the variety of tasks they have to perform, in the skills they need to master and in the imagination required for their work. Rising expectations have brought rising quality. But, in the last third of the century, near-impossible burdens have been placed on the teaching service of developing countries. The end of the colonial era brought new demands for education. Schools had to expand at an unprecedented rate and needed to be staffed. Demographic pressure and the practical difficulty of expanding teacher education in pace with the demand for schooling made for a chronic shortage of teachers in much of Africa and Asia.

A shortage of teachers will either reduce the chances of children getting an education at all, or reduce the quality of what they do get. In many cases ‘prospective primary teachers in developing countries typically have not completed secondary education’ (Lockheed and Verspoor 1989, para. 207). Where teachers’ own education is limited, they lack the confidence, knowledge and skills to teach much more than they were themselves taught, or to teach in a different way. The problems are at their most severe in the poorest countries: one estimate suggests that by the end of the century low-income countries will still lack 1.8 million teachers (ibid., para. 20). Public pressure to widen opportunities for schooling, and the very success of ministries in opening new schools in response to this pressure, mean that demands for schooling have run ahead of the supply of teachers. Teacher shortages have been compounded by attrition as teachers have left a profession whose relative status and income has declined in many countries over the last two decades.

Quality matters as well as quantity. To do their job well, teachers need to possess a mastery of the subject matter they are to teach and to be skilled in the process of teaching: a tall order for those who enter teaching with a
minimal education, may receive little or no training in pedagogy and are quite likely to teach in a school with meagre resources. While, in many countries, it may be possible to see an end to the problems of scarcity, problems of quality are bound to linger. An undertrained teacher beginning work this year may teach the grandchildren of today’s class before retiring at the age of 60, well into the next century.

While this picture is common to many countries, it is neither homogeneous nor uniform. Some countries already have more teachers than they need or will soon do so. Many have been able to raise the entry level to the teaching profession. But, even where this is the case, some kinds of teachers are scarce: women teachers in many Muslim countries; technical and vocational teachers where industry pays them better; mathematicians and scientists almost everywhere.

These problems of quality and quantity have not been solved by the development and expansion of conventional methods of teacher training. Where birth rates are high, and where education expanded rapidly in the 1960s to 1980s, the development of teacher education has tended to lag behind demand, constrained by a shortage of human, physical and financial resources. Good teacher trainers have themselves been scarce. Buildings require capital. Once built, colleges need books and resources. Teacher training, even where it is doing little more than providing secondary education, may cost between one-and-a-half and ten times per student as much as the cost of secondary education (ibid., para. 215).

Thus, while teacher education has dramatically expanded, it has done so within an economic straitjacket, pulled tighter by the strings of demography. It is small wonder that it has barely kept pace with the demands for initial teacher training for new teachers, let alone dealing with the backlog of those already in service; teacher-training colleges have generally had too much to do in their main job of initial training to take on the extra job of continuing education for those who have already passed through their gates.

**THE ROLE OF DISTANCE EDUCATION**

Education has no panaceas. Governments have adopted a variety of strategies for expanding the supply of teachers, raising their morale, supporting their work and improving their skills. One of these strategies involves using distance education, ‘an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner’ (Perraton, 1982, p. 4).

Distance-education programmes have used a variety of methods to overcome the separation between learner and teacher. Many, from as far back as the invention of cheap post, have used correspondence lessons as a staple. More recently, radio and television have been brought into play and some of the most imaginative programmes have linked broadcasting with
correspondence. In the last few years distance-teaching institutions in the industrialised world have set up telephone conferences to link students and have taught them through computer networks. In the developing world the Universities of the South Pacific and of the West Indies have used satellite communication in order to reach students across their scattered territories.

The term ‘distance education’, however, is a misnomer: the most effective programmes include an element of face-to-face teaching as well as using correspondence and mass media. Open universities, for example, encourage or require students to attend occasional evening sessions or short residential courses. Colleges of education teaching students at a distance sometimes include a one-term residential course as part of a programme of distance education.

Distance education has grown in numbers of students and institutions and in academic respectability in the last 30 years. It was embraced in the first years after colonial rule by many countries seeking to expand their teaching force in response to public demands for more schools and more teachers. It was then given a new status and public recognition by the establishment of open universities, starting in Britain in 1969 but then extending to over 25 other countries. These universities, offering their own degrees and using a combination of media to teach their students, raised the quality of what had previously been education’s poor relation, producing courses and using teaching methods of a new quality.

Distance-teaching methods have proved attractive to ministries of education for three main reasons: they make it possible to reach students who cannot get to a college; they lend themselves to part-time education so that students are not taken out of the work force in order to study; they appear to allow economies, in part by avoiding the need for new buildings, including housing for students. As a result they have been used in rich and poor countries, for experienced and inexperienced teachers, at primary, secondary and tertiary levels, to provide a general education and to improve pedagogical skills, to overcome what was seen as a short-term crisis and to serve as part of a regular system of continuing education. The purpose of this book is to review that experience, asking what has been done and how it has been done, to evaluate it, asking about both effects and costs, and to ask about its relevance to the future of teacher education.

In order to compare and generalise from distance-education programmes we can analyse them along four dimensions—in terms of their audiences, of their content and purpose, of their methods and of their organisational structure.

**AUDIENCES**

Distance-education programmes have been used to train teachers with differing backgrounds and at a variety of different levels. In comparing the
Distance education for teacher training

Where countries face the most severe shortages of teachers, they have sometimes developed distance-education programmes for new recruits to the teaching force, providing initial training, often to recent school leavers. In both Tanzania and Zimbabwe, new recruits to teaching were enrolled on large-scale programmes of teacher training run at a distance and were put straight into the schools. In Guyana, the Ministry of Education ran a small programme to train science teachers, some of whom were recruited straight on to the course and posted to schools at that time.

More often, programmes have been run for the initial training of teachers

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who are already in service, and therefore experienced. Soon after independence, for example, Francistown Teacher Training College ran such a programme in Botswana while the Logos II programme in Brazil addressed a comparable audience. At secondary level, the Open University in Sri Lanka teaches experienced teachers who lack a teaching qualification.

Continuing education programmes for experienced and qualified teachers have been developed at all three levels of education: Deakin University, for example, offers a BEd programme which is mainly followed by primary-school teachers seeking a further qualification; the British Open University runs a variety of courses for serving teachers, many of whom are teaching at secondary level. These programmes have been more prominent in industrialised than in developing countries: as the level of qualification needed to enter the teaching profession has risen, so those already in service have demanded opportunities for continuing education in order to upgrade their own qualifications. While, in many countries, teachers in higher education have not generally been trained, there is now some demand for such training. In response to this, the University of Surrey developed a Diploma in the Practice of Higher Education which was made available at a distance for serving teachers in higher education; its students have experience as teachers but vary as to their previous training in education.

CONTENT AND PURPOSE

Good teachers need to be made: we cannot assume that enough are born to allow reasonable staffing ratios. But there are formidable barriers to the process of making them. Some of those barriers are arithmetical: as schools expand so they demand more teachers from their own previous cohort of students. Others are educational: primary schools recruit as their teachers those who have performed less well at their examinations than those aiming for university. Meanwhile pressures to recruit more teachers almost inevitably hold down any move to raise the entry requirements for the profession. At the same time teachers whose education was itself restricted will have difficulty with a curriculum, or with an approach to education, that is beyond those restrictions. And there are financial barriers. In many countries teachers are members of the largest but least well-paid profession. This has a double effect: the ablest teachers are attracted away to better-paid jobs while governments are understandably reluctant to raise teachers’ salaries. Increasing the pay of primary teachers, or of those among them who attain a higher qualification, can have a significant effect on government budgets.

Effective programmes of pre-service teacher education need to overcome these barriers. Where significant numbers of teachers are untrained then there is one further barrier: if you take the experienced but untrained teachers out of the schools for training, their replacements are likely to be less experienced
and less competent. In-service training is likely to be needed alongside preservice.

Pre-service and in-service training alike pose complex demands. Trainees need to acquire both the skills of teaching and an adequate knowledge of the subject matter they are to teach. These two facets of teacher education present different logistical demands: you can study academic subjects in a college of education, or at a distance, but some of the skills of teaching probably need to be acquired in the classroom. Trainees need to get to the classroom and their tutors need to visit them while they are there. In planning teacher education it is also necessary to balance its different elements, recognising that:

the distinction between general education and training is not as obvious as might appear... There is a continuous spectrum stretching from what everyone would agree upon as general education to instruction that is quite clearly professional training. Exactly where the line will be drawn between them depends not only upon the individual making the judgment but also upon the stage of development of the school system and upon the grades at which the trainees in question are going to teach. Knowledge that is quite essential stock-in-trade for the teacher at one level may be thought of rather as part of a teacher’s cultural and intellectual background at a different level or in a different setting.

(Beeby, 1966, p. 83)

Reflecting these differences, programmes have varied in their content and in the relative weight they give to general education, to teaching about the subjects which the trainees will themselves teach, to educational theory and to practical classroom training.

Programmes providing a general education, which is not directed either to the subjects they will teach in the classroom or to pedagogy, may be most significant in industrialised countries. Many adult students of open universities in industrialised countries are themselves teachers and are following academic degree courses in preference to pedagogical qualifications. The British Open University found that 40 per cent of its initial cohort of students on degree courses were teachers.

In practice, programmes have often tried both to provide a general education to students and to increase their knowledge of the subjects they are to teach. Many of the early distance-education programmes for teachers offered an equivalent form of secondary education to teachers who had themselves only completed primary, or at most the first couple of years of secondary, education. In Kenya, the Correspondence Course Unit (as it then was) of the University of Nairobi ran courses for serving teachers in the late 1960s and early 1970s which enabled them to complete a secondary education and pass the Kenya Junior Secondary examination.

The main emphasis of the unit’s work was to be in-service teacher
training in the light of the urgent need for teacher upgrading. The plan was not for training teachers in classroom methodology. It was aimed principally at upgrading their basic knowledge and general education although there was always the possibility that teachers’ methods would improve as a result of the examples placed before them in the unit’s courses.

(Hawkridge et al., 1982, p. 181)

Where such programmes have been directed specifically at teachers, they have most often been addressed to primary-school teachers and, therefore, have provided teaching across a range of subjects. There are, however, exceptions: the Guyana programme already referred to concentrated on science in response to a particular shortage of science teachers.

Other programmes have combined education about the subject matter of the school curriculum with both theoretical and practical work on pedagogy. Courses which go beyond teaching an academic curriculum have included material on education itself. In Indonesia, for example, open-university students on a teaching diploma course spent 80 per cent of their time on academic subjects and 20 per cent on educational theory and methods. At tertiary level, the University of Surrey’s Diploma in the Practice of Higher Education consisted entirely of modules about education without any more general subjects or supervision of teaching practice.

But learning how to teach is of the essence in teacher training. Trainees need practice in the classroom, and need to have that practice guided by a supervisor or tutor. Close links between college and classroom are needed if practice and theory are to inform each other, and if teachers are to avoid dismissing anything taught at their college as irrelevantly theoretical. The organisation of teaching practice presents severe problems to conventional colleges of education and these are magnified where students are learning at a distance, often a long way from their tutors. Distance-education programmes have tried to solve the problems in various ways. In Tanzania, head teachers and adult tutors from the country’s extensive adult-education service were asked to supervise trainees. Microteaching has been used during students’ residential courses. Where communications make this possible, tutors from the students’ college or university can visit them in the field. Tutors in Swaziland could do this in a day, and return home the same day from any part of the country; Kenyan tutors had to stay in the field for some weeks.

METHODS

The methods used in teacher education at a distance have varied according to the purpose of the programme concerned and to practical circumstances. Most programmes have used correspondence lessons as a staple, seizing the advantages of a medium which could reach students anywhere—though some
students more quickly than others—and could give them a text on which to rely. From the Botswana programme set up in the 1960s and planned even before independence to the proposals to upgrade Jamaican teachers in the 1990s, correspondence has been seen as an essential part of the methodology. Exceptions exist: a programme of teacher education in Nepal in the mid-1990s used radio as the main teaching medium while television was used for teacher education alongside school teaching in the Côte d’Ivoire educational television service. But these are very much exceptions and the day-to-day activity of most programmes has been to do with the development and running of correspondence education.

Correspondence has seldom been used alone. Many programmes have begun with the intention of using broadcasts or cassettes alongside correspondence. In industrialised countries multimedia approaches have often been sustained: the British Open University, for example, continues to use broadcasts to support its specialised as well as its more general courses. Similarly, the University of Nairobi has continued to run programmes which use correspondence and radio. But many developing-country programmes have come up against insuperable logistical difficulties in using audiovisual media as well as print. In Swaziland, for example, the use of radio was early abandoned by William Pitcher College. In Nigeria, plans to use audiovisual media await the day when learning centres are equipped with the right hardware.

Programmes have, however, most often made it possible for students to receive some face-to-face support as well as studying literally at a distance. The large-scale programmes in Tanzania and Zimbabwe sandwiched periods of face-to-face tuition with study at a distance, undertaken while trainees were working in schools. In Guyana, regular practical sessions were arranged for their trainee science teachers on Saturdays in university or school laboratories. In many, though not all, cases programmes have arranged for the supervision of trainees’ classroom practice. Indeed, for the administrator the most important variable in considering the use of different media and methods of teaching probably concerns teaching practice: the organisation of a distance-education programme is necessarily more complex where trainee teachers have to be supervised in the field.

Experience of distance education more generally confirms the value to the student of a multimedia approach. One analysis of teacher education suggests, too, that programmes dependent on a single medium are most likely to fail and to be closed down (Brophy and Dudley, 1982), although there are counter examples. The Logos II programme in Brazil met the demands of its students with no more than printed materials; as an act of policy Deakin University allows its students to study entirely at a distance should they wish to do so.

**ORGANISATION AND MANAGEMENT**

Countries have adopted a variety of organisational strategies in running distance
education for teachers. These have varied according to the scale of the programme and the national resources available to support it.

Tanzania decided that, to run an emergency programme for 45,000 trainees and support them in the field, it needed an ad-hoc structure that would coordinate the work of a group of national and local institutions including the National Correspondence Institute, colleges of education, the University of Dar-es-Salaam and both government and party adult-education apparatus. It was not the intention to create a permanent structure but to put together elements for a single, though complex, activity over a limited period of time.

More often, countries have decided to make distance education the responsibility of a single institution which operates in parallel with others. The National Teachers’ Institute in Nigeria offers courses for the two main primary-level teaching qualifications which are also available in conventional, pre-service training colleges. Similarly, on a much smaller scale, in the 1970s both Botswana and Swaziland used a single college of education to run distance-education programmes, while other colleges continued with their regular work.

Universities have also taken responsibility for programmes of teacher education. The open universities in Britain and Pakistan have, for example, offered programmes of teacher education alongside their degree, diploma and continuing-education work. Similarly universities which teach both at a distance and face-to-face have taken responsibility for programmes of teacher education. The Ontario Institute for Studies in Education, which is the educational faculty of the University of Toronto, has used audioconfer-ences as a way of reaching graduate students throughout the province of Ontario.

All these approaches have in common that distance-education programmes are an alternative to other ways of training teachers, even though they may call on the resources of institutions within the conventional system. Zimbabwe launched its Zimbabwe Integrated Teacher Education Course (ZINTEC) programme in much the same way, using some, but not all, of its teacher-training colleges as the bases for ZINTEC. Since then, however, it has moved towards integrating distance education with the regular work of teacher training, so that all trainee teachers do some of their training at a distance and some within colleges. Distance teaching has become part of the regular process of teacher education.

To summarise, we can distinguish at least five organisational models for running programmes:

a. one-off emergency campaigns (for example, Tanzania universal primary education (UPE))
b. establishment of one or more teacher-training colleges, working in parallel with others, but teaching at a distance (for example, National Teachers’ Institute)
c. teacher training provided as one course among others by an open university (for example, Faculty of Education, Open University)
d. teacher training provided as one course among others by a bimodal
university with both internal and external students (for example, for graduate students of the Ontario Institute for Studies in Education)
e. integration with teacher education generally (for example, Zimbabwe following ZINTEC).

However a programme of distance education is organised, its administrators will need to consider who is to undertake each of six key functions: producing materials, printing them, distributing them, marking them, supervising students’ written, and in many cases practical, work including classroom practice, and assessing them. The organisational structure chosen will affect the location of responsibility for each of these functions: a teacher-training college with national responsibilities for distance education (model b above) may need to develop its own system for course development while a department within a university (model c or d) will be able to rely on the resources of its parent institution. The choice of course writers, for example, will depend on the academic strength of the institution responsible and the ease with which it can tap the resources of other institutions.

While some of the problems inherent in these functions are common to any form of teacher education, others are peculiar to distance education or are compounded by the factor of distance. We have already touched on the difficulties of supervising teaching practice. Rapid distribution of materials, and the rapid turn-round of students’ work, increase effectiveness but make heavy administrative demands, especially in large countries with scattered populations and limited physical infrastructure.

COSTS AND FUNDING

Governments have adopted a variety of different policies on funding programmes of distance education for teachers and these have in turn affected the demands they put on students.

Many programmes of teacher education have been funded from the regular government budget which has met all or most of their recurrent and capital costs. Donor funding has sometimes been available for some of the costs of teacher education. The World Bank, for example, has funded capital developments in distance education: it provided a headquarters for the Lesotho Distance Teaching Centre which has worked on teacher education with partner institutions within Lesotho. The Asian Development Bank has funded the development of plans for an open university in Bangladesh which will have teacher education high among its priorities. UNESCO and UNICEF have both provided resources to teacher education at a distance, moving specialists from Lebanon and New Zealand, for example, into southern Africa to work on distance-education projects. The Swedish International Development Authority (SIDA) has provided not only expertise but also paper to support distance education in Tanzania.
Another potential source of funding is from student fees. While many programmes of teacher education have been free to students, so that there is no fee income, there are a number of cases in which teachers themselves contribute to the costs of their own education. In Brazil, for example, the Logos II programme was run by a private body and so funded mainly from student fees. Asian open universities have generally required students to pay fees. Students in Kenya in the 1970s, seeking to get secondary-level qualifications and thereby upgrade their status as teachers, paid a nominal fee to enrol on distance-education courses. Students of the National Teachers’ Institute in Nigeria pay a registration fee and pay for their learning materials. But these are exceptions: more often initial or in-service training programmes leading to a basic primary-teaching qualification have not expected their students to pay fees.

Indeed, rather than charge a fee, some programmes have paid their students an income while they study. In both Tanzania and Zimbabwe students were employed as unqualified teachers while they were studying and received the salary appropriate to that status. Enrolment on these courses guaranteed students a job and a salary as well as bringing the promise of increased pay and improved status if successful.

Degree-level programmes have often been funded rather differently. Many countries have made charges of one kind or another to part-time students, even where full-time students have paid no fees. Students of the British Open University following specialist courses in education have been charged fees as have students working for a part-time first degree. In Kenya, where students following a full-time BEd course are not charged a fee, those seeking the same qualification through distance education have to pay fees. This has been justified on the grounds that the part-time students are drawing an income from which to meet their fees while full-time students cannot do so. Such tuition fees have, however, generally been set at a level below the full cost of programmes so that even fee-paying students have had some benefit from government subsidy of higher education.

From the student’s point of view the financial reward at the end of the course may be as important as the fee. The programmes with the highest internal efficiency—those with the highest successful completion rates—have tended to be those where students were guaranteed improved status and more pay on completion. While this policy does not raise the cost of running a teacher-education programme, it does increase the eventual expenditure by the ministry of education. Better teachers cost more. It appears that some governments have held back on the expansion of teacher training because of the difficulty of increasing the total salary bill. And unwillingness to pay an expected increase is likely to damage student morale; where the expectation of increased salary has evaporated while an upgrading programme is running, the motivation of students has naturally suffered.

The various ways in which programmes have been funded have thus been a function of government policy, while decisions about funding have, in turn,
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affected students’ behaviour, progress and attitudes. The programmes which are apparently cheapest to the state are those where students pay fees that meet most of the costs, such as Logos II in Brazil, where students work in the unguaranteed expectation that they will get promotion once they are better qualified. But if we assume, as many teachers believe, that better teachers bring incommensurate and long-term benefits to society, then there may be a long-term economic case for the subsidy which governments have been making to programmes of teacher training.

THE CASE-STUDY DATA

While this chapter and the concluding one are informed by the general literature on teacher education at a distance, their conclusions are based most firmly on the case studies discussed in Chapters 2 – 12.

Tanzania: teacher training programme

A decade after independence, Tanzania resolved to achieve universal primary education, virtually doubling the number of children at school. Teachers had to be found. The government recruited secondary-school leavers and trained them on the job. Trainees split their time between teaching in the expanded primary schools and studying for their teaching qualification at a distance. Some 45,000 were enrolled and 37,000 qualified at the end of their course. The programme was run by a loose consortium of institutions, including the existing teacher-training colleges and the National Correspondence Institution which had already developed expertise in distance teaching. It made heavy use of printed materials, supported by radio, and developed a nationwide system to provide individual support and tutoring as trainees worked and studied.

Zimbabwe: integrated teacher education course

On achieving independence Zimbabwe was faced with a similar shortage of teachers to meet thepent-up demand for primary schools. Trainees had completed five years of secondary schooling and followed an equivalency programme that gave them qualified-teacher status. Zimbabwe used four of its teacher-training colleges to train teachers on a sandwich-course basis so that they spent some time in the colleges and some time working in the schools. While they were working at school, trainee teachers followed correspondence lessons. They gained their qualification by passing an end-of-course examination equivalent to that taken by students in regular colleges of education.
Brazil: Logos II programme

Logos II was addressed to unqualified and unlicensed primary-school teachers, particularly in rural areas. In total there were some 300,000 of these teachers. The programme corresponded in level to the last four years of primary school and three years of secondary school but also provided training in pedagogy. Some 49,000 students were provided with correspondence lessons and encouraged to attend occasional sessions led by monitors in rural centres. Students could then take examinations which were the equivalent of those used in the regular system. Logos II was run by a private organisation working on contract to the federal Ministry of Education and under its general supervision.

Indonesia: Open University programme and Sri Lanka: National Institute of Education, Institute of Distance Education

Both Indonesia and Sri Lanka have considerable experience of distance education and have developed open universities which include teacher education among their responsibilities. Both countries, too, have shortages of trained teachers which are particularly severe at secondary level. Indonesia therefore set up a programme for unqualified junior-secondary teachers with one year of post-secondary education and at least two years’ teaching experience. Sri Lanka aimed its programme at untrained primary-and secondary-school teachers, most of them having ‘O’ or ‘A’ level certificates gained after five or seven years of secondary education. The purpose was to eliminate 35,000 untrained teachers from the system. Both projects had support from the United States Agency for International Development (USAID), whose comparative evaluation forms the basis of the case study.

Nepal: Radio Education Teacher Training Project

Nepal has expanded its educational system dramatically over the last 40 years but still has significant numbers of untrained teachers working in its schools. Its terrain made radio an attractive medium for in-service education and, over the years, it has experimented with a number of different approaches to the use of radio for reaching its scattered teachers. The main aim of the programmes has been to improve the subject knowledge and teaching skills of untrained teachers who had not themselves passed the regular school-leaving certificate, which normally marks the end often years of full-time education.

Nigeria: National Teachers’ Institute

The Institute was set up in 1976 in order to provide training for the large numbers of teachers needed for universal primary education. Its students are
mainly teachers already working in schools but lacking formal teaching qualifications. Responsibility for education in Nigeria is shared between the federal and provincial governments. As a result, organisation of face-to-face support for students rests mainly with provincial governments, with the Institute’s work biased towards the development of correspondence teaching. In the past many of its students have been seeking secondary-equivalence qualifications. As the educational level of teachers in the schools has risen, so it has introduced courses for more advanced educational qualifications.

Pakistan: Primary Teachers’ Orientation Course, Allama Iqbal Open University

Pakistan’s open university has responsibilities for matriculation and degree courses, for non-formal education and for teacher training. Through its Primary Teachers’ Orientation Course the University offered upgrading to experienced primary-school teachers. One of its purposes was to introduce teachers to a new curriculum to be used in primary schools throughout the country. Over 85,000 teachers enrolled on the course, making it the largest course in the University. Although the University uses broadcasts as one of its teaching methods, the orientation course relied mainly on correspondence study. Experience gained in running the course is being used by the University in developing new courses for teachers.

Australia: Deakin University BEd programme

Australia has a fully qualified teaching force. But, over the years, the entry level to teaching has risen so that there are large numbers of teachers in the service who feel that their promotion may be blocked unless they raise the level of their qualifications. Deakin University, which is a bimodal institution teaching both on the campus and at a distance, offers a programme for primary-school teachers working part-time for a BEd degree.

Britain: Faculty of Education, Open University

From its outset the Open University has attracted large numbers of teachers among its students, some studying across the whole range of degree courses and some studying courses within the Faculty of Education. Although initial training was not included among the University’s original functions, it provides specialised diploma and masters’ courses in education and plays a significant role in the in-service education of teachers throughout the United Kingdom. Most of its courses in education are print-led, but it also makes use of broadcasts and of video and gives students opportunities for residential
and evening face-to-face tuition. The University is now moving into the initial training of teachers.

**Kenya: University of Nairobi College of Education and External Studies BEd programme**

Secondary education in Kenya has expanded rapidly and ahead of the supply of graduate teachers. As a result there are considerable numbers of non-graduates working as secondary teachers. The University of Nairobi has long experience both of teacher education and of distance teaching; taking advantage of that experience, it developed plans to introduce external, degree-level teaching. In 1986 it launched a BEd programme for experienced non-graduate secondary-school teachers. The course is parallel to and comparable with an initial training programme for school leavers leading to the same qualification.

**Nigeria: Correspondence and Open Studies Institute, University of Lagos**

The University of Lagos, too, is a bimodal university and established its specialised institute to provide distance-education courses throughout Nigeria. Responding to national demands, its first courses were in business studies and in education. To meet a national shortage of science teachers in secondary schools, education students have been required to major in biology, chemistry, physics or mathematics. The courses have used correspondence lessons, broadcasts and tape recordings, and short face-to-face sessions but, in recent years, have mainly relied on a combination of correspondence and residential study, with a residential six-week vacation course in each year of study.

**THE QUESTIONS TO BE ANSWERED**

Three questions present themselves to planners considering the use of distance education for teacher training. First, is it any good? Second, what does it cost? Third, what are the conditions of success?

Evidence on quality is the most tricky. (It is sparse on the effects of teacher education generally.) At best we would like to know whether teachers trained at a distance became inspiring and imaginative teachers, carrying students with them in an educational process of high and rewarding quality. And we would like to know how, if at all, their classroom work differed from that of teachers trained conventionally. Research to determine this is inherently difficult, partly because teacher trainees studying at a distance can seldom be matched with those studying face to face. They are often older and have greater
classroom experience. While few studies have attempted the difficult and costly research needed to examine classroom practice, while holding constant the key variables, some indicators of classroom practice, with fewer controls, have been used. As a next best, where we lack these indicators, we can use examination results and ask simpler questions about comparative pass rates between conventional and distance education. Where we lack even this measure of external efficiency, the literature has some subjective data on the apparent outcomes of teacher-training programmes.

Measures of internal efficiency are needed in order to examine both quality and cost. For, if a programme trains a handful of teachers superbly well, but so inefficiently that far larger numbers drop out on the way, questions arise about its quality. In order to calculate a cost per student we need to know not only how many start on a teacher-education course but also how many complete.

We are on surer grounds in cost analysis than in assessing quality. Given a standard measure, such as examination passes or successful completion rates, microeconomic techniques have been developed and widely used for comparing the costs of conventional and distance education (cf. Jamison and Orivel, 1982; Jamison, et al., 1978). Cost analysis of this kind requires that we identify all the costs for an educational programme, distinguishing between capital and recurrent costs. It is then possible to express capital costs in an annual form so that one can calculate an annual cost per student. If the same process is applied to both conventional and distance education then it is possible to compare costs per student or costs per successful student. These methods have been applied in the case studies and make it possible to answer the planner’s second question about comparative costs.

If we have reassurance about quality and cost it becomes necessary to ask about the features of a distance-education programme which are likely to lead to its success. Can we, for example, identify management approaches that are likely to be more and less successful, mixes of media that seem to work best, or organisational structures that have led to smooth and effective administration? While generalisation is difficult, and the worldwide experience of distance education is varied, evidence on the conditions of success, too, is likely to be of value to planners.

REFERENCES


Pre-service initial training of teachers
BACKGROUND

The republic of Tanzania, which is one of the member countries of the Southern Africa Development Co-ordination Conference, comprises the union of Tanganyika and the islands of the sultanate of Zanzibar. From its foundation in 1964 great efforts were made to unify the people of Tanzania, who were made up of about 130 tribes, using Kiswahili, the official language as one of the key instruments. English has the status of a co-official language but its use is limited to the educated élite.

The country covers an area of about 937,062 km² and has an estimated population of 23.2 million, with an average annual growth rate of 2.8 per cent. By 1977 about 80 per cent of the population lived in planned villages, as compared to less than five per cent at independence in 1961. Settling people in the villages was the result of deliberate government effort so that they could be provided with basic services. Tanzania is largely an agricultural country with about 85 per cent of its active population engaged in agriculture and related enterprises. As in a number of sub-Saharan countries, a predominantly unmodernised agricultural economy has not sustained the per capita income. In real terms this has been falling (World Bank, 1988). Although there has been a marked improvement in the economy of Tanzania in recent years, following the adoption of a national Economic Recovery Programme, liberalisation of trade and devaluation of the currency, the country remains one of the least developed in the world, with its development hampered by a chronic shortage of foreign exchange.

The country’s political philosophy is one of socialism and self reliance, as spelt out in the Arusha Declaration, and built on three principles of the traditional African family: respect for the individual, sharing of the basic necessities of life and obligation to work. It is from the national ideology that the country’s educational system derives its objectives across all levels. The national educational policy is set out in a 1967 document Education for self-reliance. Tanzania has looked upon education as one of the most important
instruments for development. *Education for self-reliance* lays significant emphasis on education and production which is also accorded high esteem. During the 1960s this was reflected in the devoting of between 20 and 24 per cent of government recurrent expenditure to education. This was above the average for Africa. More recently, however, and especially since the late 1970s, government recurrent expenditure on education has constantly decreased as a proportion of total recurrent expenditure (Anderson and Rosengart, 1987).

In the early 1970s the ruling party decided to expand primary education with a view to achieving universal primary education (UPE) in 1967. A number of factors played a part in the move towards UPE in Tanzania (cf. Chale, 1983). Of these the most decisive seems to have been the high priority given by the political leadership to education in the transformation of Tanzanian society, and a conviction about its importance in achieving socioeconomic goals (Mählck and Temu, 1989). UPE meant expanding primary schooling from 47 per cent of the age group to 100 per cent between 1974 and 1977. This in turn meant that Tanzania needed an extra 45,000 primary school teachers over a period of five years. Teacher-training colleges were already expanding: the annual intake rose from 2,356 in 1970 to 3,825 in 1974 to 5,305 in 1977. But even this rate of expansion was not great enough to meet the demand for teachers; the Tanzania government in consequence decided to use distance-teaching methods to expand the supply of primary-school teachers. Thus, with that decision, Tanzania had two parallel programmes for training teachers.

In addition to graduates and diploma holders, Tanzania has three grades of certificated teachers who work in its primary schools. Those in grade III A have completed seven years of primary education, four of secondary and one or two of teacher training. Grade III B teachers had a two-year junior secondary education and two years of teacher training. At grade III C teachers have had two to three years of teacher training which follows the completion of primary education. The distance-education programme was designed to improve teachers at grade III C.

**THE ORIGIN OF THE DISTANCE-TEACHING PROGRAMME**

Tanzania brought varied earlier experience to the decision to launch its distance-teaching programme. First, its adoption seems to have been facilitated by the country’s long experience in using distance education for co-operative education. Throughout the country co-operative members, non-members and their executives used to take correspondence courses and listen to radio broadcasts for extra support, working together in small supervised groups. The experience gained from the Correspondence Institute of the Moshi Co-operative Education Centre apparently led the country to set up its second distance-teaching institution, the National Correspondence Institute (NCI).
Through the work of these institutions Tanzania had, by the mid-1970s, enough national experience of distance education to provide the professional expertise on which the teacher-training programme could build.

Second, the programme’s adoption reflected a general professional belief that teachers could be prepared at a distance without necessarily involving large expenditures, provided some changes were effected in the existing system and practice (Mmari, 1976, p. 6). In the early 1970s there were the proposals to use distance teaching for diploma teachers.

Third, as the project was meant to solve a national problem, it was possible to take advantage of Tanzania’s experience of mass educational campaigns (Mbunda, 1975). These campaigns made use of rural newspapers, posters, printed reading texts, village libraries, mobile cinema vans, study groups, and in particular radio broadcasts on topics such as ‘Time for rejoicing’, ‘Election is yours’, ‘Planning is to choose’, ‘Man is health’, and ‘Food is life’ (Hall and Dodds, 1974). In all cases the campaigns leant heavily, for support, on the ruling party, Chama cha Mapinduzi (CCM), and its structures. Its support for the teacher-training project also proved invaluable having itself decided in 1974 to move towards UPE but without tampering with the quality of the school education.

**PLANNING THE PROGRAMME**

The decision to adopt distance teaching was reached during a conference that had drawn together the Directors of Teacher Education (DTE), the Institute of Adult Education, the National Correspondence Institute, the Institute of Education, Radio Tanzania, and representatives from the Cooperative Education Centre, Moshi, the Prime Minister’s Office, and the Ministry of Information and Culture (Mbunda, 1978). These eventually constituted the central task force for project planning and for its administrative supervision. The task force went on to involve regional and district administrative personnel in order to support, monitor and evaluate trainees, tutors and educational materials.

Before embarking on the project a logistical feasibility study was carried out. It revealed that, if well planned, the project could take off on the basis of established administrative units called wards (kata). A group of wards formed another important administrative unit, known as a division (tarafa). In all there were 2,400 wards and 300 divisions. Although they were originally formed to facilitate the CCM political mobilisation strategies, they also played the role of adult education and literacy centres. It was not foreseen then that they would also act as local centres for the teacher-training project. By working through the wards it was possible to establish the size of the school-age population and the corresponding number of teachers to be trained. An inventory was also made of working radio receiver sets used for school and adult broadcasts.
Every ward had more than one radio set. It was also established that every ward had a small rural library of about 50 books of different titles, and a government bicycle for use by the ward adult education co-ordinator. This person later came to be involved as a local tutor for the programme. Figure 2.1 illustrates the plan of operation.

The recruitment and selection of the teacher-training at a distance (TTD) trainees, unlike that of the regular teacher-training colleges (TTCs), was decentralised to regional and village levels. Every region was given a quota. The selection criteria were laid down by the Ministry of Education. First priority was given to those who would have gone to secondary schools had there been enough places. For the first time in the history of teacher recruitment, villagers were invited through their councils to recommend candidates. Preference was given to those with expressed interest in teaching in nurseries, Tanzania Parents Association schools and adult literacy classes. Trainees had to be of mature personality between the ages of 17 and 28 years, and to be of good character and social attitude so as to command respect from their pupils. Finally, they had to pass two screening tests and interviews at district and regional levels respectively. Figure 2.1 shows the planned flow of the TTD trainees so recruited.

Recruitment and training of the TTD local tutors

The magnitude of the task of training 45,000 teachers over the five-year period was not underestimated. Right from the beginning it involved the concerted efforts of experts drawn from conventional college-based tutors, distance tutors from the National Correspondence Institute and adult education co-ordinators employed by the Ministry of Education (MoE). Local tutors for the project were trained at three levels. At the first level in-college tutors were given induction courses in the techniques of distance teaching so that they could form into correspondence format the content which was as prescribed and taught in a college. The MoE brought together a number of college tutors on the basis of their experience, professional and academic competence, and their sense of national commitment to the cause of UPE. They attended a course-writing workshop which was conducted by the National Correspondence Institute and the Research and Planning Unit of the Institute of Adult Education.

The second level of the project’s preparation may be conceived as staggered training. This moved from centrally drawn staff from the Ministry of Education, the National Correspondence Institute, Radio Tanzania and the Institute of Education and came to involve the seminar for Regional and District Education Officers and a large body of college tutors. These in turn were assigned to carry on the training of ward and divisional adult education co-ordinators. At every stage of the training process appropriate knowledge and skills had to be diffused down. This second category of personnel went...
Figure 2.1: Distance teacher training: implementation process

- MNE, Institute of Adult Education and some CNE tutors
- PM Regional and District offices
- Selection of District Teacher Centres and transportation of materials
- Selection of candidates for distance teacher training
- Writing of correspondence units and radio broadcast lessons
- A short course for CNE tutors on distance teacher training
- Discussions on new ways of training teachers
- Writing of syllabi for the teaching of Kiswahili and mathematics
- UPE

Events:
- October – December 1975
- September – October 1975
- August 1975
- January, February, and June 1975
- November 1974
through a two-month seminar with four aims: acquiring the knowledge and skills necessary for a distance-education tutor; becoming familiar with the new duties of ward and division adult education co-ordinators; gaining the knowledge and skills of dealing with residential face-to-face sessions for trainees at a distance; and learning how to carry out assessment, monitoring and feedback of the progress of the TTD programmes (Mbunda, 1978).

The third level of training and recruitment was at the grassroots with the 2,400 local tutors. These were drawn from among ward and divisional adult education co-ordinators. Most of them had themselves been Grade III A primary-school teachers, with not less than five years of professional experience in the village schools, who had also attended certificate courses in adult education. Because of their great numbers it was not possible to organise their training in one place. Instead induction seminars were decentralised and carried out in all TTCs for a period of two months. Their training, too, had four aims: awakening their political consciousness and a sense of national commitment to the implementation of UPE; enabling them to acquire the necessary knowledge and skills needed to run, supervise and monitor the progress of the TTD project, looking after a centre of ten to 20 trainees; enabling them to integrate the correspondence courses, radio broadcasts, face-to-face study groups, and the trainees’ own teaching practice; enabling them to assess trainees, evaluate the educational materials, and supervise the project under the different conditions obtained in the village training centres (Mbunda, 1978). The local tutors were given the necessary facilities including, for example, bicycles and motorcycles, audiocassettes, stationery, books and paper. These were in addition to equipment already provided for existing adult education programmes.

The elements of the TTD programme

The programme had six elements—together they formed an apprenticeship model of training which was partly school-based and partly study-centre-based. The trainees could also study privately in their own homes. The elements were correspondence courses; radio broadcasts followed by group discussion; face-to-face tuition in study centres; practice teaching followed by discussion and coaching; monitoring and evaluation; and a six-week residential seminar in TTCs. The TTD project was made a three-year course for each of the three cohorts of trainees. It was planned to be carried out in the following manner.

In the first year the trainees:

– took supervised correspondence courses in education and pedagogy, the teaching of mathematics, and the teaching of reading and writing in Kiswahili
– had to listen to 120 radio broadcasts, each lasting 25 minutes, on the above correspondence courses
– had to teach 15 periods per week (each of 40 minutes) in standards III and IV as part of their on-the-job training
– had to be evaluated at national level three times a year to determine their progress.

In the second year the trainees had to:

– go over the first-year supervised correspondence courses in greater depth and thoroughness
– do correspondence courses in geography, history, English and science, all components of the primary-school syllabus
– teach 25 periods per week in the same classes taught in the first year
– study library and environmental studies
– be evaluated three times at national level to determine whether all groups were proceeding at uniform pace.

In their third and final year the trainees had to:

– study group correspondence courses up to Form II secondary-school level in political education, English, mathematics and geography
– teach 25 periods a week in standard III–V
– attend a six-week residential seminar in a college using college resources, revising what they had studied at a distance, having their teaching competence moderated and sitting for Grade III C Teachers’ Examinations.

Although the six elements of the programme were as closely integrated as possible, it is helpful to analyse each of them separately.

**Correspondence courses**

Correspondence courses were prepared well in advance of take-off by college tutors supported by ministry officials and National Correspondence Institute staff. Trainees studied correspondence courses, working together in groups and on a lock-step basis. The courses were mailed to them through their local tutors. The materials consisted of study booklets and workbooks for writing and assignments, radio booklets and guides, record-keeping sheets, cards and study time-tables. One correspondence script was designed to last the trainee at least two weeks. In a fortnight a trainee was expected to complete a lesson in all subjects including doing an assignment. The written assignments were marked by the local tutors who sent their students’ records of performance to the Ministry of Education every two months.

The trainees also had to do group correspondence courses in political education, English, mathematics and geography and were encouraged to take other subjects. After completing each unit of study, the group worked through
a written assignment which was sent to the National Correspondence Institute for central marking. The Institute kept records of the trainees’ achievements, thus providing a continuous assessment of the trainees’ academic performance.

Face-to-face tuition

Trainees’ class-contact sessions were held three times a week, on Mondays, Wednesdays and Fridays in every local training centre. A typical session took an average total of nine hours, that is, three hours for every supervised correspondence subject. Radio broadcasts and cassette lessons were arranged on the same three days. Local tutors had a variety of jobs to do in these sessions. They had to guide the trainees towards any of the aims of the unit lessons, listen and play together recorded cassettes and discuss issues raised in the lessons. Tutors also gave personal guidance on trainees’ written assignments. Within the three or more hours the activities were varied and interspersed.

Radio or cassette programmes

Radio broadcasts were based on the contents of the correspondence course units. Each broadcast lesson took 25 minutes, and could be taped for a later replay for individual work and small-group discussions. Friday broadcasts were reserved for questions and answers for the trainees, tutors, parents and the general public. The broadcasts were intended to support and strengthen both the academic and the professional content. This was facilitated by requiring trainees to pursue the courses on a lock-step system so that all their lessons and assignments had to be completed at the same pace. To enable trainees to deepen their academic knowledge each local centre was equipped with a mini-library with books of more than 90 titles. The libraries also stocked newspapers and magazines.

Teaching

To put into practice what they had learnt through correspondence courses, tutorials and broadcasts, the trainees had to gain practical teaching experience for 15 to 25 hours per week, that is, on Tuesdays and Wednesdays. Trainees taught in nearby schools and were supervised by local tutors, head teachers or class teachers. As each trainee took a class, fellow trainees, and sometimes the local tutor or staff member, would also be present in the class. After teaching, the group would meet for modelling, demonstration, criticisms, discussions, advice, corrective measures and assessment.
Trainees were assigned to teach all school subjects at a time when the classes were densely populated with the accelerated enrolments for UPE. Because of teacher shortage, a class would have between 60 and 100 pupils as two or more streams would be combined under one roof. The project was inevitably practical, problem-solving and controversial.

**Monitoring and evaluation**

While training was in progress two types of professional field visits to the local centre were improvised. The first took the form of inspection. The trainees were subject to inspection once a fortnight by a divisional adult education co-ordinator, school inspector, tutor from a TTC, or by a regional or district education officer. The second, more irregular form of contact took place at weekend school, for all trainees in a district. They would meet at a convenient place and would be addressed by officials and tutors from the Ministry of Education, the Institute of Adult Education and the regional education officer. This was designed to encourage the trainees and attend to their special needs.

**The residential seminar**

At the close of their three-year course, trainees went through a six-week residential programme in teachers’ colleges where they reviewed what they had learnt in three years, prepared instructional materials and teaching aids, did micro-teaching and had their teaching practice moderated. During this seminar they sat written examinations for their certification.

Their examination was not the same as for the college-based trainees, but of an identical level of difficulty. The examination papers were based on pedagogy, mathematics, English, Kiswahili and syllabus analysis. The trainees had access to college-based resources, which complemented those available from village centres, primary schools, and home-based and independent learning.

**The project monitoring mechanisms**

Right from the inception of the programme monitoring devices were considered crucial to ensure that mistakes for every medium and technique could be detected, checked and corrected. A variety of personnel, internal and external to the project, were involved in different capacities in monitoring trainees’ progress, instructional materials, and the tutors’ commitment and performances. Monitoring involved tutors’ marking of assignments, the supervision of trainees’ teaching practice, their three annual examinations,
and official visits to the local centres for professional support (see, for instance, Meena 1979; Mrutu, 1979; Omari et al., 1983).

On the basis of the internal monitoring devices, several problems were diagnosed and appropriate remedies taken. Some co-ordinators proved unsuitable and had to be discontinued; others complained of heavy workloads, and additional staff were recruited to enable them to concentrate their attention on the project. Where the delivery of the study materials got delayed, measures were taken to make this efficient. Recorded cassettes were sent to centres with poor radio reception. This, however, proved cumbersome and the problem was compounded by an acute shortage of radio batteries. Some cases were also reported of the trainees’ being deployed in understaffed schools for their teaching practice. This was remedied to enable them to spare more time for their private studies. As the centres were manned by a single tutor, trainees complained of lack of support guidance and proper continuity if a local tutor was transferred. Other local tutors complained of having academic difficulties in coping with all the correspondence subjects. To remedy these, transfers were suspended over the period of the project, and ineffective local tutors were advised to involve any other subject specialist nearby. In this way the TTD task force could constantly see what needed to be discontinued, modified or institutionalised.

EVALUATION OF THE DISTANCE-BASED PROJECT

After their three years of training each batch of the TTD trainees had to be evaluated, like their college-based colleagues, on the basis of three criteria: commendable character, competent teaching practice, and academic and pedagogical achievement.

Despite scrutiny for commendable character on their recruitment, the trainees remained under constant assessment for their teaching aptitude, commitment to their schools, and for their active social involvement in activities of their villages. Those convicted of indiscipline and misbehaviour within the ethics of the teaching career were dismissed. This kind of assessment was done by village councils, school teachers, local tutors, and district and regional education officers.

Their final assessment for competence in teaching was carried out by moderation panels of the same composition as prescribed for the TTCs. Between five and ten per cent of the trainees in each batch were randomly selected for the purpose. The panels assessed the trainees’ effectiveness in terms of their ability to prepare lessons, lesson introductions, lesson development, use of variety of methods, teaching aids, lesson conclusion and evaluation of their pupils’ achievements. Demonstrated classroom performance of the trainees was crucial in their certification.

Finally the TTD trainees had to sit for written examinations set by the National Examinations Council of Tanzania, equivalent to those taken by their TTC colleagues. Those who failed were not given a second chance.

Their overall examination performance is given in Table 2.1. It shows that 93
per cent of the official 40,000 trainees from the original target of 45,000 trainees passed their teacher training course. While this indicates the project’s quantitative effectiveness it is necessary to ask about its cost and about their effectiveness in the classroom.

Taking 1975–76 as the base year, up to 1980–81 the TTC project produced 8,007 successful teachers while the TTD produced 35,028. That is, within the five-year period the TTD project produced more than four times as many certificated teachers as the TTCs.

The quality of the TTD teachers was, however, questioned by various observers and not least by the parents of the children. This new approach, combining on-the-job training and studies at a distance could not, it was said, compete with the training offered at TTCs. Ishumi (1986, p. 15), for example, regarded the initial TTD programme in Tanzania as representing a radical departure from standard practice. He cited Omari et al. (1983, p. 44) who reckoned the scheme as having been organised on a rather haphazard basis. Then Ishumi (op. cit., p. 15) not only wondered whether the TTD programme succeeded in preparing teachers with the right qualifications, but also lamented that, in his view, apart from Chale’s study (1983), the programme had not been subjected to systematic evaluation.

Two major studies have now been undertaken on the effectiveness of the TTD programme. Chale (1983) undertook a case study based on a sample of 240 teachers in Iringa, half of whom had trained conventionally through TTC, and half at a distance through the TTD scheme. Mählck and Temu (1989) looked at 700 teachers in three districts—Mtwara, Dodoma and Kilimanjaro—again comparing two groups of teachers. The first study was done one year after students graduated and the second after three years. Both studies used questionnaires and

### Table 2.1 Enrolment and output from the distance teacher-training programme, 1979–84

<table>
<thead>
<tr>
<th>Year</th>
<th>No. enrolled</th>
<th>Period of training</th>
<th>Sat exam</th>
<th>Pass exam</th>
<th>% pass</th>
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<tr>
<td></td>
<td></td>
<td>July</td>
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<td></td>
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<td>July 1976</td>
<td>13,510</td>
<td>1976</td>
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<td>1978</td>
<td>1981</td>
<td>13,825</td>
<td>12,553</td>
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<tr>
<td>Sub-total 45,534</td>
<td></td>
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<td>1981</td>
<td>37,414</td>
<td>35,028</td>
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<td>1983</td>
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<td></td>
<td></td>
<td>1984</td>
<td>1,708</td>
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<tr>
<td>Sub-totala</td>
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<td></td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>37,998</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Ministry of Education, Department of Teacher Education; and compilations from teacher examinations)

Note

a. Enrolment continued in 1981 and 1982 on a small scale and in a limited number of regions with particular teacher shortages.
classroom observation in order to compare teachers trained conventionally and at a distance.

In assessing trainees Chale (op. cit., p. 113) used nine criteria:

- mastery of academic subject matter
- mastery of educational theory and pedagogy
- adaptability to teaching demands
- clarity of expression and communication
- relating the subject matter to the environment
- involvement of the child in learning and co-operation activities
- classroom management and control
- self-confidence and interest in the child
- monitoring and assessment of the pupils’ progress.

Mählck and Temu (op. cit., p. 38) used ten criteria:

- mastery of subject matter
- mastery of educational and pedagogical theory
- lesson preparation
- selection and preparation of teaching aids
- promotion of co-operation among pupils
- stimulation of pupils’ interest in learning
- clarity of expression
- class management and control
- lesson evaluation
- self-confidence.

It may be striking to note that the variables, though phrased differently, are largely identical. We have on the one hand demonstration of subject matter mastery, and on the other, teaching skills.

With regard to subject matter mastery, both studies show that the residential teachers performed slightly better in all subjects but the difference was significant only in science (ibid., pp. 119 and 124). College-trained teachers seemed to do better in science, probably because those trained at a distance did not have access to laboratories for practicals and experiments.

On classroom performance, Chale’s study, done one year after the teachers’ graduation, indicated that the distance-trained performed better than the college-trained teachers. The later study, on the other hand, conducted three years after the teachers’ graduation, showed that there was virtually no difference between the two teacher categories in classroom performance. Commenting on this overall picture, Mählck and Temu (1989, p. 124) observe ‘this result is not to be wondered at. It is rather logical that eventual initial differences due to variation in teaching experience diminish as time goes by.’

More specifically, Chale found that the data, including examination results, on academic subject matter (the first of these criteria) showed that the two groups of
teachers were more or less equally effective, although the TTC teachers were marginally more effective. TTC teachers were also marginally more effective in their mastery of educational theory and ability to monitor student progress. On the other criteria, the data:

indicated that TTD teachers were more competent than TTC teachers ...TTD teachers were more well-adjusted than TTC teachers in coping with demands of their teaching situations. Their apprenticeship form of training had enabled them to be acclimatised to the classes and to rehearse their teaching strategies a thousand times more than the TTC teachers. Due to this form of training experience, TTD teachers were also found to be more competent in communication skills, and in conducting environment-oriented teaching. We further found that their teaching was also more activity-oriented than that of TTC teachers. There was also plenty of evidence to indicate that TTD teachers were more effective in classroom management and control despite large classes and scarce educational resources. TTD teachers also managed to demonstrate more self-confidence and interest in children.

(Chale, op. cit., p. 113)

For their part, Mählck and Temu, reviewing their own and earlier findings, drew two general conclusions about the comparative effectiveness of the two programmes:

Whatever differences between participants of the distance programme and the residential programme that may have existed before and immediately after their training, after a few years of regular teaching the two teacher groups did not differ as regards subject matter knowledge and teaching competency in the core subjects of the curriculum; the notable exception was science in which the performance of the residentially trained teacher was superior.

(Mählck and Temu, op. cit., p. 125)

Their second conclusion was that:

globally speaking, the two training programmes have succeeded in developing the teachers’ confidence in their own competence but the distance programme has been relatively less successful in reinforcing self-confidence among female teachers.

(ibid., p. 126)

There was no clear evidence of the reason for this gender difference except the hint that female distance trainees ‘reported having received less teaching practice and less instruction how to teach the subjects during their training than their male colleagues’ (ibid.).
Mählck and Temu also noted the value of the on-the-job training and counselling and the strong political and community support of the programme in supporting and encouraging trainees as factors which made for success in the TTD programme.

The cost-effectiveness of the TTD programme

The lifetime of the TTD project was five years. Except for the trainees’ preservice allowance, the TTD project, unlike the TTCs, was not directly financed by the Tanzanian government but largely by foreign grants, notably from the Swedish International Development Authority (SIDA), UNESCO, UNICEF and the Ford Foundation. Its economic costs are consequently drawn from accounts given by the Ministry of Education and the National Correspondence Institute where the project’s activities are co-ordinated.

Table 2.2 summarises the number of successful trainees drawn from the three trained batches of the Grade II C teachers and their variable costs within the lifetime of the TTD project. The batches are labelled A, B and C and each batch went through a three-year course.

The costs shown in Table 2.2 include handling of the study material by administrative and clerical staff at the Ministry of Education and the National Correspondence Institute headquarters, postal services, pre-service allowance to the trainees, field visits to the local centres, monitoring of the project and evaluation of its inputs as well as its activities.

In Table 2.3, however, the calculations are based on an annual intake of 15,000 trainees as described in relation to the TTD plan of operation. Taking the intake as the baseline, the only major item accounting for proportionately large variable costs is the trainees’ pre-service allowance of Tshs 150 per month. This amount needs to be multiplied by 12 months to get the annual unit cost. This amount remained the same throughout the five-year lifetime of the project. We may recall each of their in-college counterparts received only Tshs 60 per month. On the basis of the same principle, a cost breakdown has been made of the rest of the budget variable items.
The fixed costs for the project are summarised in Table 2.4. They include capital expenditure and other costs which are not significantly affected by the number of trainees. They reflect inputs of the multimedia system including costs and expenses of the centrally based professional and administrative staff at the Ministry of Education and National Correspondence Institute buildings, plant and equipment, preparation of the study courses and radio programmes, maintenance of equipment and vehicles, and orientation seminars for all personnel involved. Costs for course production workshops, seminars, radio transmissions and textbooks are regarded as fixed because they are not affected by the number of the trainees. Fixed costs for local centres are considered as additional costs and are discussed later, as are the fixed costs for residential training during the six-week college-based seminar.

In the light of the analysis of the overt costs we can derive a cost function in the form:

\[ AC(N) = \frac{FC}{N} + VC \]

where AC = the average cost,  
\( N \) = the number of students,  
FC = the fixed cost, and  
VC = variable cost per student.

With an intake of 15,000 students the function is:

\[ 4,365(15,000) = \frac{10,737,608}{15.000} + 3,649 \]
Pre-service initial training of teachers

Table 2.4 Breakdown of the TTD project fixed costs per item (Currency: Tanzania shillings)

<table>
<thead>
<tr>
<th>Components</th>
<th>Expected life years</th>
<th>Total capital cost</th>
<th>Annualisation</th>
<th>Annual cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 NCI buildings*</td>
<td>50</td>
<td>29,200,000</td>
<td>0.077</td>
<td>2,248,400</td>
</tr>
<tr>
<td>2 Printing machinery storage and recording equipment</td>
<td>15</td>
<td>6,000,000</td>
<td>0.113</td>
<td>678,000</td>
</tr>
<tr>
<td>3 Professional and executive staff at the head offices</td>
<td>–</td>
<td>3,020,000</td>
<td>–</td>
<td>604,000</td>
</tr>
<tr>
<td>4 Vehicles and equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 46 landrovers – Tshs 95,000</td>
<td>7</td>
<td>4,370,000</td>
<td>0.189</td>
<td>825,930</td>
</tr>
<tr>
<td>– 350 motorcycles – Tshs 7,045</td>
<td>7</td>
<td>2,465,750</td>
<td>0.189</td>
<td>466,027</td>
</tr>
<tr>
<td>– 208 bicycles – Tshs 750</td>
<td>7</td>
<td>156,000</td>
<td>0.189</td>
<td>29,484</td>
</tr>
<tr>
<td>– 1,955 radios – Tshs 535</td>
<td>6</td>
<td>1,045,925</td>
<td>0.213</td>
<td>222,782</td>
</tr>
<tr>
<td>– 2,400 cassette recdr – Tshs 1,500</td>
<td>6</td>
<td>3,600,000</td>
<td>0.213</td>
<td>766,800</td>
</tr>
<tr>
<td>5 Maintenance of vehicles and other equipment through mobile units</td>
<td>–</td>
<td>4,500,000</td>
<td>–</td>
<td>900,000</td>
</tr>
<tr>
<td>6 Workshop on course writing production: TDD core subjects</td>
<td>5</td>
<td>20,950</td>
<td>0.247</td>
<td>5,175</td>
</tr>
<tr>
<td>7 Workshop on script preparation for radio programmes</td>
<td>5</td>
<td>16,650</td>
<td>0.247</td>
<td>4,113</td>
</tr>
<tr>
<td>8 Transmission of radio programmes – airtime 1.5 hrs per week</td>
<td>–</td>
<td>750,000</td>
<td>–</td>
<td>150,000</td>
</tr>
<tr>
<td>9 Staged orientation seminars for 24 TTC Principals, REO, Divisional and Ward co-ordinators</td>
<td>5</td>
<td>14,634,000</td>
<td>0.247</td>
<td>3,614,598</td>
</tr>
<tr>
<td>10 Books for consolidating the TTD project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Locally printed books including syllabus analysis</td>
<td>8</td>
<td>300,000</td>
<td>0.171</td>
<td>51,300</td>
</tr>
<tr>
<td>(b) Other reference in the local training centres</td>
<td>8</td>
<td>1,000,000</td>
<td>0.171</td>
<td>171,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>71,079,275</strong></td>
<td><strong>10,737,608</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note

a. Based on current value of existing building at time of project.

giving an annual total cost per student of Tshs 4,365 (1988 US $819.40) comprising a fixed cost of Tshs 716 (1988 US $134.40) and variable costs of Tshs 3,649 (1988 US $685.00). For the three-year programme the cost per trainee was therefore Tshs 13,095 (1988 US $2,458.20). These costs have been converted using the 1979 exchange rate of Tshs 8.22 = $1.00 and the US GDP deflator to convert to 1988 US dollars.
In addition to these overt costs, four areas of hidden cost need to be examined. The first area of hidden costs stems from the apprenticeship pattern of the project. If the government had employed them as full-time untrained teachers, every trainee would have been paid Tshs 480 per month. Instead, throughout the school terms of a total of nine months in a year, they took half of the teaching work-load but received only Tshs 150 as a preservice allowance rather than Tshs 240 a month. That is, each was paid Tshs 90 less a month. In a year each trainee was paid Tshs 810 and in three years Tshs 2,430 less, which represented a saving on the part of the government through the employment of an apprentice instead of a full-time teacher.

The second area of hidden costs arises from the use of existing staff for training and supervision within the project. Staff included regional and district education officers and college principals, as well as divisional and ward adult education co-ordinators.

Of all those involved, the role of the ward co-ordinators acting as local tutors of the training centres needs to be accounted for in a special way. They spent not less than 15 hours a week on the project. If they were to be paid as part-time staff of the Institute of Adult Education evening classes, each co-ordinator would have claimed from the government Tshs 35 an hour. If the Tshs 35 per hour is multiplied by 15 hours a week and then by 2,000 co-ordinators, the government would have paid out to tutors Tshs 1,050,000 a week. In the school year of 36 weeks, the recurrent expenditure would have risen to Tshs 37,800,000. The cost would however need to be spread across the annual intake of 15,000, amounting to Tshs 2,920 per trainee per year. Instead of getting this money, local tutors retained their salaries at an average of about Tshs 950 per month or Tshs 11,400 per year.

A third area to be accounted for is the value of the premises of the local centres. Throughout the period of the TTD project a centre would have on average seven trainees a year. If every centre had called for a monthly rent of Tshs 50 (as determined by the National Price Commission), the public recurrent expenditure per trainee would have been Tshs 7, that is Tshs 50/7 trainees. But since the Tshs 50 a month would be fixed irrespective of the number of trainees, the annual fixed cost per trainee in the centre would therefore be Tshs 7 × 12 months = Tshs 84 (rounded). The figure would be the amount contributed by every trainee in a year.

The other fixed cost which needs to be considered relates to the trainees’ stay in a residential college for the six-week seminar. Spread across the three-year training, the period of six weeks constitutes one twenty-fourth of the time spent by a full-time in-college trainee. As the average cost of these trainees was Tshs 28,305 (see below) we can estimate this cost at 28,305/24 or Tshs 1,179 per TTD trainee per year.

Having analysed both overt and covert costs of the TTD project, it is useful to summarise them so that we can see clearly the net cost-effectiveness per trainee and per annum. This is done in Table 2.5.
Pre-service initial training of teachers

The net cost per TTD trainee is therefore Tshs 7,338 × 3 (years) amounting to Tshs 22,014 (1988 US $4,132.51). As 35,028 trainees completed the course and qualified as trained teachers, the net cost per successful trainee was:

\[
\frac{45,000}{35,028 \times 22,014} = \text{Tshs 28,281 (1988 US}$ \text{ $5,308.98)}
\]

The cost of conventional teacher training

To put these figures in context we need to compare them with the cost of training through a conventional college. Government recurrent expenditure for in-college training in the late 1970s was put at Tshs 17,000 per student. A detailed analysis of the expenditure at one typical college gave a figure of Tshs 17,119 per trainee, with the largest items of expenditure being for catering expenses and salaries (Chale, 1983, p. 204 ff.).

As it would be unrealistic to attempt to determine the fixed costs of all 35 of the colleges attended by TTD trainees, costs were estimated for a typical teacher-training college. The cost of construction of a college to accommodate not more than 600 students a year was estimated by a UNESCO study at Tshs 59 million, including boarding facilities, tutors’ houses and college equipment (ibid.). While this study has been concerned with the training of teachers over a five-year period, it is necessary to amortise the costs of such a college over its probable lifetime, using a life of 50 years for the building and ten years for the equipment. Table 2.6 gives the calculation of building and other fixed costs for a typical college.

In the light of this analysis we can derive a TTC cost function in the form:

\[
\text{AC}(N) = \frac{\text{FC}}{N} + \text{VC}
\]

As the college could accommodate 600 students this gives us:
so that the total cost per student per year was Tshs 28,305 (1988 US $5,313.47), giving a total of Tshs 56,610 (1988 US $10,626.94) for two-year trained and Tshs 84,915 (1988 US $15,940.41) for three-year trained teachers through conventional residential teacher-training colleges.

Two areas of hidden costs need to be taken into account for these students: first, the trainees’ upkeep as contributed by parents; second, their own contribution in terms of their production activities.

On joining a college, trainees were normally required to bring with them a number of items for their upkeep. These included uniforms, bedding, shoes, work tools and stationery. It was expected that trainees’ parents would pay for these at a total cost of Tshs 1,150 per trainee per year. This could therefore be considered as a saving on the part of the government in terms of its recurrent public expenditure.

On the other hand, the ability of government and of parents to finance teacher training was limited. As a result trainees were called upon to shoulder some of the burden of their running costs. The policy of education for self-reliance provided that every college should meet 25 per cent of its recurrent expenditure through self-reliant activities. A national evaluation (Ministry of National Education, 1980, p. 23) indicated, however, that on average the colleges had not been able to contribute more than 7.2 per cent per year to the running costs. Thus if we deduct the value of what is produced by a college, subtracting 7.2 per cent from the unit cost of Tshs 17,119, we get Tshs 15,886 per person.

Thus if we take the average annual cost per trainee of Tshs 28,305 and add the parents’ contribution of Tshs 1,150, the unit cost comes to Tshs 29,455. The figure needs to be reduced by the value of the trainee’s production

<table>
<thead>
<tr>
<th>Itemised inputs/components</th>
<th>Expected life years</th>
<th>Capital unit cost</th>
<th>Annualisation factor 7.5%</th>
<th>Annual cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  TTC buildings</td>
<td>50</td>
<td>53,100,000</td>
<td>0.077</td>
<td>4,089,000</td>
</tr>
<tr>
<td>2  Equipment</td>
<td>10</td>
<td>5,900,000</td>
<td>0.146</td>
<td>861,000</td>
</tr>
<tr>
<td>3  Office expenditures</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>491,000</td>
</tr>
<tr>
<td>4  Maintenance of buildings and grounds</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>561,000</td>
</tr>
<tr>
<td>5  Maintenance and running of vehicles and machinery</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>710,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>59,000,000</td>
<td></td>
<td>6,712,000</td>
</tr>
</tbody>
</table>

(Source: Chale, 1983, p. 208)
activities of 7.2 per cent. This gives us Tshs 27,334 (1988 US $5,131.19) per person per year.

CONCLUSIONS

An analysis of both overt and hidden costs shows that the cost per successful TTD trainee was Tshs 28,281 while the cost for TTC two-year trainees was Tshs 54,668 and for a three-year trainee Tshs 82,002, figures that need to be raised to allow for wastage and failure from TTCs estimated at seven per cent (Chale, 1983, p. 221).

In the light of Tanzania’s successful experience of training teachers at a distance, we can ask what has since happened to teacher education. Broadly speaking, Tanzania not only has kept complementary approaches but also is considering emulating them at higher levels.

The Ministry of Education has sought to improve the quality of education and has embarked on upgrading primary teacher-training programmes since 1981–82. This has taken the form of school-based training combined with a distance component (especially correspondence studies and radio programmes featured as ‘Wito kwa Walimu’) during one phase of the training, and college training for the rest. For a variety of reasons, including shortages of school-based instructional materials, laboratory equipment and other resources, both the TTC and the TTD programmes have been modified despite the latter’s cost effectiveness.

Initial primary teacher training at TTCs has become more practical oriented. Over the last few years college tutors have also been increasingly involved in distance-education workshops, designed to enable the tutors to be of greater help to primary-school teachers doing upgrading courses to enable Grade III C and III B teachers to become Grade A.

Upgrading has been transformed to encompass a wider range of subjects instead of simply the core courses. What is particularly significant here is that a 12-month upgrading programme is preceded by a nine-month school-based distance-training strategy followed by a three-month residential course at a TTC.

Finally, in view of the demonstrated effectiveness of distance teaching, a ministerial Committee on the Establishment of an Open University in Tanzania (1990) also recommends the provision of upgrading teacher preparation programmes through distance teaching at degree level. Despite negative comments by some educationalists, the committee is of the view that distance education is a viable alternative to the conventional training organised at teachers’ colleges in terms of quantity, quality and cost-effectiveness.

REFERENCES


3 The Zimbabwe Integrated Teacher Education Course

B.R.S. Chivore

When Zimbabwe attained independence, there was an unprecedented expansion in the provision of education at all levels. To illustrate the degree of expansion in education in 1979, there were 2,401 primary schools with an enrolment of 819,586 pupils. In 1989, there were 4,504 primary schools with an enrolment of 2,274,178 pupils. At secondary level, in 1979 there were 177 secondary schools with an enrolment of 66,215 pupils. By 1989, there were 1,502 secondary schools with an enrolment of 695,882 pupils (Secretary for Education, Annual reports, 1979–89).

Expansion in the provision of education did not go hand in hand with an adequate supply of professionally trained teachers. The extent of the shortage can be illustrated using statistics (Table 3.1) from 1980 to 1988. It should be noted that the number of professionally untrained primary teachers increased from 8,031 in 1980 to 28,173 in 1988. This meant a percentage increase of 350.8.

On the other hand trained teachers increased from 20,424 in 1980 to 29,589 in 1988 which was a percentage increase of 144.8. In real terms, therefore, the number of professionally untrained teachers grew more rapidly than professionally trained teachers over that period.

Table 3.1 Professionally trained teacher shortage in Zimbabwe, 1980–88

<table>
<thead>
<tr>
<th>Year</th>
<th>Trained teachers</th>
<th>Untrained teachers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>20,424</td>
<td>8,031</td>
<td>28,455</td>
</tr>
<tr>
<td>1981</td>
<td>22,654</td>
<td>15,119</td>
<td>37,775</td>
</tr>
<tr>
<td>1982</td>
<td>23,699</td>
<td>21,768</td>
<td>45,465</td>
</tr>
<tr>
<td>1983</td>
<td>25,954</td>
<td>26,548</td>
<td>52,502</td>
</tr>
<tr>
<td>1984</td>
<td>30,424</td>
<td>24,000</td>
<td>54,424</td>
</tr>
<tr>
<td>1985</td>
<td>30,065</td>
<td>26,610</td>
<td>56,675</td>
</tr>
<tr>
<td>1986</td>
<td>31,496</td>
<td>26,752</td>
<td>58,248</td>
</tr>
<tr>
<td>1987</td>
<td>26,133</td>
<td>30,987</td>
<td>57,120</td>
</tr>
<tr>
<td>1988</td>
<td>29,589</td>
<td>28,173</td>
<td>57,762</td>
</tr>
</tbody>
</table>

(Source: Secretary for Education, Annual reports, 1980–8)
THE ZIMBABWE INTEGRATED TEACHER EDUCATION COURSE PROGRAMME

The aims and objectives of the Zimbabwe Integrated Teacher Education Course (ZINTEC) programme started in 1981. Its aims and objectives included:

a. to meet the primary-teacher shortage through an in-service type of teacher education
b. to develop a teacher-education system relevant to the specific problems facing the Zimbabwean people in their everyday lives in the community
c. to develop a teacher-education programme which is better placed in terms of better dissemination of knowledge guided by socialism as an ideology for Zimbabwe
d. to effect development changes through teacher education whose practical operation must highlight learning by doing—thus effecting theory with practice
e. to develop a professional teacher with skills needed in the appropriate teaching techniques capable of providing active learning experiences to pupils, for example the concept of education with production
f. to develop an all-round primary teacher with positive attitudes, perceptions and values that promote meaningful involvement in community development.


When all is said, the ZINTEC programme was born out of necessity: that necessity, which overrides all the other aims and objectives, was primary-teacher shortage.

Certain assumptions, which derive from the aims and objectives, lay behind the launching of the ZINTEC programme. The first was that the conventional teacher-education system had failed to produce enough teachers to meet the demand which followed educational expansion at primary level. Then there was a need to produce a new teacher in line with the enunciated ideology of socialism. The Deputy Minister of Education and Culture, for example, stated:

We are instituting an education ideology which should be a means of transforming our society, one that will eventually dispel ignorance, fear, poverty, disease and the mental colonization under which our people lived for nearly a century.

(Herald Newspaper, 1982)

It was also assumed that teacher education, the student-teacher and the teacher so trained had a role to play in the country’s development process. To that end there was a need to fuse theory with practice, basing this on the practical realities of learning and teaching through on-the-job training. Finally, there
was consensus that every child in Zimbabwe had (and still has) a right to education—thus making education a basic human right. This meant that a relatively large teaching force, capable of working under difficult conditions, was needed.

**Justification for the ZINTEC programme**

The decision to start the ZINTEC programme was, first and foremost, political. Primary education was made free and compulsory. The political decision to expand primary education resulted in a political decision to train more primary teachers to staff the schools. Zimbabwe could not use the old colonial-based three-year conventional system to produce teachers because this system produced inadequate quantities of primary teachers.

A further justification for starting the ZINTEC programme was professional. As stated in the *Handbook on student teaching in secondary schools* (1983, p. 2):

> More and more in the teaching profession as well as industry, on-the-job training, with increased opportunities for the trainees to integrate the theoretical and practical learning is being seen as having long term pay offs both for the individual trainee as well as for the profession. The argument seems to be that it is more effective to train teachers while they are at school for longer periods than was the case under the three-year conventional training.

Ncube (1983, p. 48) noted:

> There is a great deal of interaction during this stage between the student teacher on the one hand and the education world on the other. They [ZINTEC students] see the problems of teaching and education as they are. Whatever solutions emerge are practical in the sense that the student teachers are constantly grappling with those problems both within and outside the school just as they would as full teacher practitioners in a normal school community.

The professional justification has examples elsewhere in Africa. Kenya, Lesotho, Nigeria and Tanzania have programmes similar to the ZINTEC programme, though there are differences in terms of detail and implementation strategies.

The third justification relates to the cost of training teachers. Relatively more teachers were trained using the ZINTEC programme than the three-year conventional scheme without necessarily constructing new buildings. An evaluation carried out in 1986 claimed that the cost of training teachers under
the ZINTEC programme was cheaper than the three-year conventional pattern (Impact Evaluation of the ZINTEC Programme, 1986).

Recruitment

To train as a teacher under the ZINTEC programme, entry requirements were, [and remained, at the time of writing, 1991], exactly the same as those needed to train as a non-university graduate teacher, primary or secondary. These entry requirements are five ‘O’ levels plus a language, now English language. Each ZINTEC college had three intakes per year from 1981 to 1984. From 1988, however, each of the two remaining colleges had two intakes per year in order to facilitate more time spent at college, as will be discussed in more detail later.

Between 1981 and 1984, that is, a four-year period, a total of 7,353 candidates were admitted into the four ZINTEC colleges, namely Morgan, Marymount, Gwanda and Andrew Louw (Table 3.2). The programme could only take students within the four-year period 1981 to 1984 because in the fourth year those in the first intake went back to college to complete their course. In other words the actual admission into ZINTEC colleges for the first cycle ended in 1984.

To complete the picture of the ZINTEC programme it is necessary to have information on student-teachers admitted into conventional primary teachers’ colleges (Table 3.3).

Candidates classed as ‘referred’ were given two more chances to rewrite their examinations and complete their projects or teaching practice. ‘Deferred’ candidates were those who temporarily left the course due to pregnancies or, less often, illness.

Whereas ZINTEC colleges stopped new recruits in 1984, conventional colleges, because of their mode of training, recruited new candidates each year. Despite this, and the fact that there were seven conventional colleges and only four ZINTEC colleges, there were more ZINTEC (7,353) than conventional (6,599) students recruited during the period under discussion and more ZINTEC (5,887) than conventional (5,416) student-teachers completed their course.

Structure and organisation

When the ZINTEC programme started in 1981, its structure consisted of the National Centre, based in Harare, the colleges and the Regional Centres.

The National Centre consisted of three units responsible for administration, for production, and for evaluation and co-ordination.

The Administrative Unit consisted of the Director who was at the Chief Education Officer (later Deputy Chief Education Officer) level, Senior
Table 3.2 Candidates admitted and completing courses under the ZINTEC programme 1981–88

<table>
<thead>
<tr>
<th>College</th>
<th>Admitted No.</th>
<th>Pass %</th>
<th>Distinction %</th>
<th>Fail No.</th>
<th>Fail %</th>
<th>Referred No.</th>
<th>Referred %</th>
<th>Deferred No.</th>
<th>Deferred %</th>
<th>Drop-outs No.</th>
<th>Drop-outs %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morgan</td>
<td>2,559</td>
<td>78.8</td>
<td>66</td>
<td>41</td>
<td>1.6</td>
<td>277</td>
<td>10.8</td>
<td>221</td>
<td>8.6</td>
<td>6</td>
<td>0.2</td>
</tr>
<tr>
<td>Marymount</td>
<td>1,815</td>
<td>78.1</td>
<td>73</td>
<td>20</td>
<td>1.1</td>
<td>183</td>
<td>10.1</td>
<td>191</td>
<td>10.5</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>Gwanda</td>
<td>1,461</td>
<td>84.0</td>
<td>33</td>
<td>24</td>
<td>1.6</td>
<td>173</td>
<td>11.8</td>
<td>36</td>
<td>2.4</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Andrew</td>
<td>1,518</td>
<td>81.6</td>
<td>64</td>
<td>29</td>
<td>1.9</td>
<td>139</td>
<td>9.1</td>
<td>109</td>
<td>7.2</td>
<td>5</td>
<td>0.3</td>
</tr>
<tr>
<td>Louw</td>
<td>1,236</td>
<td>80.0</td>
<td>236</td>
<td>114</td>
<td>1.5</td>
<td>772</td>
<td>10.5</td>
<td>557</td>
<td>7.6</td>
<td>23</td>
<td>0.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7,353</td>
<td>80.0</td>
<td>236</td>
<td>114</td>
<td>1.5</td>
<td>772</td>
<td>10.5</td>
<td>557</td>
<td>7.6</td>
<td>23</td>
<td>0.3</td>
</tr>
</tbody>
</table>

(Source: College pass lists and records)

Table 3.3 Candidates admitted and completing courses at conventional colleges, 1981–88

<table>
<thead>
<tr>
<th>College</th>
<th>Admitted No.</th>
<th>Pass %</th>
<th>Distinction %</th>
<th>Fail No.</th>
<th>Fail %</th>
<th>Referred No.</th>
<th>Referred %</th>
<th>Deferred No.</th>
<th>Deferred %</th>
<th>Drop-outs No.</th>
<th>Drop-outs %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutare</td>
<td>822</td>
<td>74.4</td>
<td>21</td>
<td>8</td>
<td>0.9</td>
<td>80</td>
<td>9.7</td>
<td>102</td>
<td>12.4</td>
<td>20</td>
<td>2.4</td>
</tr>
<tr>
<td>Nyadire</td>
<td>510</td>
<td>80.0</td>
<td>20</td>
<td>17</td>
<td>3.3</td>
<td>36</td>
<td>7.0</td>
<td>36</td>
<td>7.0</td>
<td>13</td>
<td>2.5</td>
</tr>
<tr>
<td>Seke</td>
<td>1,402</td>
<td>89.6</td>
<td>71</td>
<td>12</td>
<td>0.8</td>
<td>86</td>
<td>6.1</td>
<td>37</td>
<td>2.6</td>
<td>10</td>
<td>0.7</td>
</tr>
<tr>
<td>Bondolfi</td>
<td>737</td>
<td>89.4</td>
<td>43</td>
<td>1</td>
<td>0.1</td>
<td>21</td>
<td>2.8</td>
<td>46</td>
<td>6.2</td>
<td>10</td>
<td>1.3</td>
</tr>
<tr>
<td>Mkoba</td>
<td>976</td>
<td>79.6</td>
<td>23</td>
<td>9</td>
<td>0.9</td>
<td>120</td>
<td>12.2</td>
<td>58</td>
<td>5.9</td>
<td>17</td>
<td>1.7</td>
</tr>
<tr>
<td>College of United Education</td>
<td>1,203</td>
<td>73.3</td>
<td>49</td>
<td>16</td>
<td>1.3</td>
<td>156</td>
<td>12.9</td>
<td>133</td>
<td>11.0</td>
<td>15</td>
<td>1.2</td>
</tr>
<tr>
<td>Morgenster</td>
<td>949</td>
<td>86.4</td>
<td>51</td>
<td>9</td>
<td>1.0</td>
<td>46</td>
<td>4.8</td>
<td>18</td>
<td>1.8</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6,599</td>
<td>82.0</td>
<td>278</td>
<td>72</td>
<td>1.1</td>
<td>545</td>
<td>8.2</td>
<td>430</td>
<td>6.5</td>
<td>91</td>
<td>1.3</td>
</tr>
</tbody>
</table>

(Source: College pass lists and records)
Executive Officer and an Executive Officer. The Administration Unit had overall responsibility for the whole programme, which included liaising with the Head Office on matters pertaining to teacher education, liaising with the Regional Directors and Officers in the deployment of student-teachers, liaising with the University of Zimbabwe on certification of students, initiating seminars, workshops and vacation courses and general supervision of ZINTEC colleges. It is this Unit which saw to it that distance-education materials were distributed to students through ZINTEC colleges in the regions.

The Production Unit was responsible for the writing of all distance-education learning materials used by student-teachers during the time these student-teachers were deployed in the schools. In carrying out these duties, the Production Unit saw to it that distance-education modules were dispatched to the regions through ZINTEC colleges, wrote and modified syllabuses, attended seminars in the regions and colleges, and carried out research. Following the 1982 evaluation report, the Production Unit wrote distance teacher-education modules for all non-graduate teachers’ colleges—primary or secondary, conventional or non-conventional, and government or non-government. Writing on the role of the National Centre, Ncube (1983, p. 46) noted.

It may be appreciated that the National Centre is basically the initiator and co-ordinator of all ZINTEC activities in Zimbabwe. It is the watchdog of ZINTEC objectives as envisaged by the founders of this teacher education programme. There is also a sense in which the National Centre is representative of the new thrust in terms of educational practice and interpretation in Zimbabwe.

The Evaluation and Co-ordination Unit was responsible for planning research and for formative and summative evaluation as well as monitoring of the ZINTEC programme. These duties included assessing the aims and objectives of the programme, pre- and post-testing of distance-education modules produced by the Production Unit, co-ordination of assessment procedures, and assessment of human and material resources. At the end of 1982, however, the Evaluation and Co-ordination Unit moved to the Head Office of the Ministry of Education where it logically became part of the Planning Division to evaluate not only ZINTEC but also all the education programmes in the Ministry of Education.

At the time of writing (1991), the National Centre is headed by a Principal Lecturer, assisted by professional staff (writers) and non-professional support staff. The professional staff consist of subject-team leaders and writers. These subject teams are based on such subjects as social studies, pure science, languages, and the theory of education (Figure 3.1).

The National Distance Education Centre now produces modules not only for ZINTEC colleges but also for all non-graduate teachers’ colleges. The duties that used to be performed by the Director and the Deputy Director are
Pre-service initial training of teachers

now carried out by the Division of Institutions and the Department of Teacher Education, Ministry of Higher Education.

When the ZINTEC programme started, there were five regional centres. These were Mashonaland based in Harare, Manicaland based in Mutare, Midlands in Gweru, and Masvingo and Matabeleland in Bulawayo. Regional centres were responsible for the supervision and monitoring of student-teachers. Lecturers at these regional centres also supervised student-teachers in distance education using modules supplied by the National Centre.

There were four colleges when the ZINTEC programme started. These were Morgan in Harare, Andrew Louw in Masvingo, Marymount in Mutare and Gwanda in Gwanda. The main functions of these colleges can be divided into two main categories: those functions relating to the initial and final college courses and those functions relating to the supervision of students deployed in schools.

Following the 1982 evaluation (Chivore and Masango, 1982) Regional Centres and colleges combined. The Regional Centres, physically and operatively, moved to be part of the teachers’ colleges. In addition, in 1988, only two colleges—Morgan and Gwanda—remained as ZINTEC colleges. Marymount and Andrew Louw (now Masvingo Teachers’ College) became conventional teachers’ colleges.

Residential courses and face-to-face support

The ZINTEC programme included face-to-face education. Face-to-face teaching occurs mainly during the first 16 (now 34) weeks or two terms based at colleges. During this residential period major activities include:

![Diagram of Distance Education Centre](image-url)
a. theory of education—including psychology, philosophy, sociology and history of education; curriculum studies are also carried out
b. applied education, that is, the study of teaching methods for all subjects done at primary school level
c. classroom management, class management and teaching-practice organisation done through microteaching and in local schools
d. curriculum depth studies, that is, studies in depth of content and methods of teaching one curriculum subject; the purpose is to develop and sharpen the students’ knowledge and skills in at least one subject
e. development studies such as home economics and agriculture in order to give students skills to participate in community-based subjects
f. research methods, aimed at training students how to carry out research in various aspects of education
g. organisation of community-based projects; this is an introduction to community projects such as literacy classes and the concept of education with production.

The final residential course takes place in the last two terms of the fourth year. During this period, students revisit all the courses introduced during the first phase. They also complete their research projects and final examinations.

ZINTEC student-teachers are deployed throughout the country. Every effort is made to deploy these students in clusters of two or more per school so that they can assist each other and to enable visiting tutors to see more than one student at each school. Students’ practical teaching and academic education, including theory of education, are both supervised. During school deployment, students continue work on theory of education using study modules and continue their education through vacation courses and weekend seminars on a face-to-face basis. They also undertake full-time teaching with responsibility for classes just like any other teacher in the teaching service.

Several organisations, institutions and officials are involved in the instruction of ZINTEC student-teachers. Figure 3.2 shows the relationship between them. Lecturers visit student-teachers at least once per school term to supervise teaching practice. In addition, headmasters, district education officers and education officers supervise these student-teachers’ teaching practice. These officials send reports on each student to the parent college where the students came from. Headmasters, District Education Officers and Education Officers do not, however, supervise student-teachers in the theory of education, partly because some of these officers do not have academic and professional qualification in the theory of education.

The involvement of headmasters, District Education Officers and Education Officers in the supervision of teaching practice lies in the fact that these are experienced officers. Some of them may in fact be more experienced than college lecturers, who may have been promoted to the college from secondary schools and be supervising student-teachers for the first time. These local supervisors—headmasters and Education Officers—working hand-in-hand with college
lecturers strengthen the supervision of teaching practice under the ZINTEC programme.

**Staffing ZINTEC**

As with other teacher-education programmes in Zimbabwe, the staffing of the ZINTEC programme was and still is the responsibility of the public service. All the workers in this programme are civil servants. When the programme started in 1981, the majority of staff members, and particularly the professional staff, such as writers and lecturers, were recruited from secondary schools, while others came from conventional colleges. Similarly, conventional colleges recruited, and still recruit, the majority of their lecturers from university graduates teaching in secondary schools. As the experience of the majority of these lecturers was at secondary rather than primary level, short in-service courses were necessary to orient them towards what was needed at primary teachers’ colleges. The 1982 evaluation (Chivore and
Masango, 1982, p. 47) noted this when it reported: ‘In short, in-service courses are required for all lecturers in training colleges in Zimbabwe.’

When the ZINTEC programme started, there were 14 professional members of staff at the National Centre. These lecturers had adequate and relevant qualifications. To illustrate this point, of the 14 professional staff, 71.4 per cent had first degrees, 21.4 per cent Masters’ degrees and 7.2 per cent had PhD degrees. Professionally, all these lecturers were trained with qualifications such as diploma in education and post-graduate certificate in education.

Up to the fourth intake in 1982, there were 75 lecturers at ZINTEC colleges. Out of this number, nine (65.3 per cent) were university graduates, two (2.6 per cent) had ‘A’ levels and 24 (32 per cent) had ‘O’ levels. In short the majority of the lecturers were university graduates. As far as professional qualifications were concerned, all these lecturers were professionally trained. During the same year (1982, fifth intake) there were 63 lecturers at the regional centres. Out of this number 45 (71.4 per cent) were university graduates while two (3.1 per cent) had ‘A’ levels and 16 (25.3 per cent) had ‘O’ level qualifications. All these lecturers were professionally trained.

Thus, at both ZINTEC colleges and regional centres there were some lecturers who were not university graduates. These non-university graduates taught specialist subjects such as music, agriculture, home economics, physical education, and art and craft. The evaluation of ZINTEC and recommendations made in the evaluation contributed towards and led to the offering of BEd degree courses in some of these practical subject areas at the University of Zimbabwe.

In terms of quality measured by academic qualifications, ZINTEC lecturers at the National Centre, colleges and Regional Centres, compared favourably with those in the conventional colleges. In fact the situation improved as the programme progressed. To illustrate this point, by January 1990, Morgan ZINTEC College had 36 lecturers. Of these, 30 (83.3 per cent) were university graduates while the remaining six (16.7 per cent) were non-university graduates (Morgan Zintec College, Staff returns, 1990).

As noted above, the majority of the lecturers recruited for primary teachers’ colleges came from secondary schools so that it became necessary to orient them towards the work of primary teachers. Staff development courses were launched not only for ZINTEC lecturers but also for conventional colleges as well. The courses offered (Gatawa, 1986, p. 22) included college-based department or inter-departmental programmes; national workshops or seminars; university sponsored non-certificate programmes; study abroad; and formal in-service courses abroad or at the University of Zimbabwe leading to certification. According to Gatawa (1986, p. 22):

Underlining these programmes is the realization that lecturers need support, upgrading and development. Teachers who have left their families and supportive environment of the school and taken up the
daunting challenges of the colleges teaching need ‘conversion’ courses to help them cope and develop confidence.

Assessment and certification

Candidates who train under the ZINTEC programme, like all non-university graduate teachers in the country, are assessed and certificated by the University of Zimbabwe. The Department of Teacher Education of the University of Zimbabwe is responsible for monitoring, assessing and approving syllabi followed by the ZINTEC colleges. The process of moderation begins with syllabi which are also sent to external assessors. External examiners have been brought from countries such as Botswana, Lesotho, Swaziland, Tanzania, Kenya, Sweden, the United Kingdom and the US. This is done to keep the standards of teacher education in ZINTEC not only in line with that of the conventional system within Zimbabwe but also in tune with trends in the international community.

During the initial two-term residential course, students are assessed through assignments and short written tests. This assessment assists colleges in determining whether or not candidates proceed to the second phase of the course, that is, deployment in schools. Examinations or tests done during the first year are not used for the students’ final assessment. During deployment in schools, students write assignments based on their distance-education modules. To pass, in the final assessment (fourth year), students must get at least a 50 per cent mark in teaching practice, curriculum depth studies, applied education and theory of education.

STUDENT PERFORMANCE

One of the burning issues in any teacher-training programme is whether the teachers so trained are effective. This is crucial because money spent producing ineffective teachers is money badly spent. We have two kinds of information about the effectiveness of the ZINTEC programme—on examination pass rates and course completion rates, and on classroom performance.

Examination pass rates

The pass rates of candidates presented for examination purposes in the final fourth year were shown in Table 3.2. They show that for the first cycle of the ZINTEC programme, the pass rates were comparatively as good as those of the conventional system shown in Table 3.3. Out of the original 7,353 candidates, 5,887 (80 per cent) passed their first attempt or sitting in
examinations. Those who obtained distinctions, who are included in the 5,887, were 236 (3.2 per cent). At conventional colleges out of 6,599 candidates, 5,416 (82 per cent) passed while 278 (4.2 per cent) obtained distinctions. On the whole, therefore, there were no significant statistical differences between ZINTEC and conventional student-teacher performance in their final examinations. In terms of failure rates, the average failure rate under the ZINTEC programme was 1.5 per cent whereas that of conventional colleges was 1.1 per cent. The difference between the two systems is negligible.

The statistics provoke the question whether ZINTEC and conventional college students wrote the same examinations. Assessment procedures among teachers’ colleges, including ZINTEC colleges, are not identical. As teachers’ colleges are autonomous tertiary institutions in professional matters, syllabi and examinations at these colleges differ. The assessment procedures in all teachers’ colleges, ZINTEC included, are, however, similar in that the examinations are moderated by the University of Zimbabwe, which ensures that the examinations set, projects written, teaching practice and applied examinations given are of ‘acceptable standard’ for all non-graduate teachers’ colleges.

The success or failure of any programme is measured in terms of not only those who pass but also those who complete compared with those who fail to complete the course. This makes it important to know the drop-out rates in both the ZINTEC programme and the conventional system during the period under discussion. For the ZINTEC programme, the total average drop-out rate is given as 0.3 per cent, while that of the conventional system is given as 1.3 per cent of those originally admitted. These figures indicate that there were slightly more drop-outs in conventional than ZINTEC colleges. According to Gatawa (1986, p. 21), ‘the dropout rate is statistically insignificant. In fact, the programme [ZINTEC] is so attractive [such] that its numbers are continuously augmented by “drop-ins” from the conventional system.’ What Gatawa termed ‘drop-ins’ were student-teachers who left conventional colleges to join the ZINTEC programme during the First Cycle. Between 1981 and 1984, the present author analysed returns from the teachers’ colleges and established that while conventional colleges did not fill all their places during this period, ZINTEC colleges had waiting lists. There were reasons for this: candidates who joined the ZINTEC programme tended to be more mature than those who joined the conventional system. ZINTEC student-teachers under the First Cycle received a salary the first month they started their course and, like other teachers, in November of every year received a bonus of ten per cent of their annual salary. At the end of their training, ZINTEC-trained teachers received and still receive a starting salary exactly the same as that of any other non-graduate teacher, primary or secondary. Teachers, including those trained through ZINTEC, are civil servants who enjoy benefits such as medical aid, pension scheme, and housing loan guarantee. More than anything, it would seem, salaries paid to student-teachers while training were responsible for making this programme not only unique
Pre-service initial training of teachers in Zimbabwe’s history of teacher education, but also a resounding success in terms of insignificant drop-outs. Conventional student-teachers did not enjoy this privilege of salaries during training until the introduction of the four-year mode of training based on the ZINTEC experience.

Teacher effectiveness

A number of studies have been carried out to determine the effectiveness of ZINTEC student-teachers in areas such as planning, scheming, teaching and learning aids, classroom management, language and communication, education with production, education and the community, extra-mural activities, lesson evaluation, and keeping of records among other issues (ZINTEC National Centre, 1982). This was based on a sample of 150 ZINTEC student-teachers deployed throughout the country (Table 3.4). The columns which were used to determine ZINTEC teacher effectiveness were the ‘not effective’ and the ‘effective’ columns. The ‘somewhat effective’ column is almost neutral.

From these results, ZINTEC student-teachers, in rank order, were rated effective in extra-mural activities, language and communication, teaching and learning aids, class management aids, records, and classroom management aids. On the other hand, ZINTEC student-teachers were assessed and rated as ineffective (in rank order) in planning, education with production, scheming, and education and the community.

The same students were assessed in terms of mastery of content of the subjects they taught. These subjects included English, Shona, Ndebele, mathematics, art and craft, social studies, and environmental studies among others. In virtually all these subjects, ZINTEC student-teachers were rated as

Table 3.4 The effectiveness of ZINTEC student-teachers deployed in schools

<table>
<thead>
<tr>
<th>Activity</th>
<th>Not effective %</th>
<th>Somewhat effective %</th>
<th>Effective %</th>
<th>Total %</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>8</td>
<td>48</td>
<td>44</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Scheming</td>
<td>16</td>
<td>54</td>
<td>30</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Teaching and learning aids</td>
<td>2</td>
<td>30</td>
<td>68</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>Classroom management aids</td>
<td>6</td>
<td>40</td>
<td>54</td>
<td>100</td>
<td>6</td>
</tr>
<tr>
<td>Class management</td>
<td>10</td>
<td>32</td>
<td>58</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Language and communication</td>
<td>2</td>
<td>30</td>
<td>68</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>Education with production</td>
<td>26</td>
<td>42</td>
<td>32</td>
<td>100</td>
<td>9</td>
</tr>
<tr>
<td>Education and the community</td>
<td>44</td>
<td>30</td>
<td>26</td>
<td>100</td>
<td>11</td>
</tr>
<tr>
<td>Extra-mural activities</td>
<td>2</td>
<td>20</td>
<td>78</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Lesson evaluation</td>
<td>18</td>
<td>42</td>
<td>40</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>Records</td>
<td>12</td>
<td>32</td>
<td>56</td>
<td>100</td>
<td>5</td>
</tr>
</tbody>
</table>

(Source: ZINTEC National Centre, 1982, p. 12)
effective. Part of the explanation for this was the fact that the entry qualifications were at least five ‘O’ levels which at that time included a language (now English language). In other words the levels of academic education acquired by these student-teachers, prior to their admission to this programme, was such that they had no problem in understanding the content of subjects taught at primary level.

In Zimbabwe, at the end of primary education (Grade 7) pupils write a public examination. In the same study referred to above, results of pupils taught by ZINTEC student-teachers were analysed and compared with the national trend. This type of study has weaknesses which should be recognised. In the analysis of these Grade 7 examination results, other variables such as the type of examination, the school set-up, resources at these schools, background of pupils, class size and so on were not taken into consideration.

The subjects analysed (written at Grade 7 final examination) were English I, English II, mathematics, Shona and Ndebele. The picture which emerged, expressed in percentages, is shown in Table 3.5. The above results indicate that the majority of Grade 7 pupils taught by ZINTEC student-teachers passed their examinations. A comparison between the achievement of pupils taught by ZINTEC student-teachers and the national trend shows that overall ZINTEC student-teachers were as competent as the ‘other teachers’. In other words, going by these figures it would be safe to conclude that in terms of pupil achievement ZINTEC student-teachers were fairly competent.

The 1982 study referred to above, as well as other studies (Planning Division 1980 Evaluation), attempted to assess ZINTEC students’ effectiveness. It is common knowledge that some fine efforts made when candidates are student-teachers evaporate once these same students have been certificated as fully fledged trained teachers so that it is important to assess their effectiveness after completion of their training.

The present author (Chivore, 1990c) with a team of 14 experienced educationists, which included college lecturers, education officers, headmasters and university lecturers, carried out a pilot study on the effectiveness of primary teachers trained since Zimbabwe attained

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Table 3.5 Examination performance of Grade 7 pupils taught by ZINTEC students

<table>
<thead>
<tr>
<th>Subject</th>
<th>ZINTEC students</th>
<th>National trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>English I</td>
<td>74%</td>
<td>64%</td>
</tr>
<tr>
<td>English II</td>
<td>74%</td>
<td>78%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Shona</td>
<td>80%</td>
<td>78%</td>
</tr>
<tr>
<td>Ndebele</td>
<td>83%</td>
<td>79%</td>
</tr>
</tbody>
</table>

(Source: ZINTEC National Centre, 1982)
independence. This pilot study was carried out in the Harare Region (urban) which is the biggest education region in the country. The study was comprehensive and collected data covering such issues as background of the schools, headmasters, and teachers who were observed teaching, among several other factors. Some of the variables assessed were class management, lesson introduction, lesson plans, schemes of work, teacher-pupil interaction, questioning techniques, class control, pupil participation, mastery of subject matter, record keeping, amount of written work given, lesson evaluation, and tests given, among others. Information was collected from all the primary grades—that is, Grade 1 to 7. Teachers assessed included those trained under the conventional, three- and four-year pattern and the ZINTEC programmes.

Table 3.6 contains information on items analysed according to the type of training received by primary teachers trained since Zimbabwe attained independence. In all, 16 items thought to be crucial were analysed. Out of this number, ZINTEC-trained teachers were rated more effective than conventionally trained teachers in 13 items. These items were lesson introduction, teacher-pupil interaction, questioning techniques, classroom control, pupil participation, mastery of subject matter, marking pupils’ books, scheming, planning, neatness and tidiness, teacher displays, children’s displays, and lesson evaluation. It should be stressed that this was a pilot study based on one region and a different picture may emerge from a nationwide study.

A few observations can, however, still be made. Going by the results in the pilot study, it seems ZINTEC-trained teachers were rated as more effective than conventionally trained teachers in terms of teaching. Of course one crucial aspect not assessed is the relationship between teacher effectiveness and pupil achievement. For the ZINTEC-trained primary teachers, however, we can tentatively note that they were rated as more effective than conventionally trained teachers. It would seem that the longer the exposure to practical teaching during training, the more effective is the teacher so trained. Put in other words, there seems to be a relationship between the length of training and teacher effectiveness. The length of time spent during teaching practice (training-on-the-job) seems crucial. Under the ZINTEC programme as well as the four-year training pattern, student-teachers were exposed to the actual teaching processes far more than under the three-year conventional training whereby students spent one term (roughly three months) of their three years’ training on-the-job. By the time ZINTEC teachers completed their training, they would have been exposed to almost all the problems they would encounter as fully trained teachers.

EVALUATION OF ZINTEC

Since the launching of the ZINTEC programme in 1981, several evaluations have been carried out by the Ministry of Education, UNICEF and other
Table 3.6 Effectiveness of primary teachers trained since independence according to type of training received.

<table>
<thead>
<tr>
<th></th>
<th>Conventional</th>
<th></th>
<th></th>
<th>ZINTEC</th>
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<td>Effective</td>
<td>Total</td>
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**NS** = not significant

N = 129
interested scholars. The evaluations had implications for the ZINTEC programme itself in terms of revealing problems that needed attention, for teacher education, particularly the conventional system, and education in general.

In this discussion two major evaluations carried out in 1982 and 1986 will be referred to. Reference will also be made to studies carried out by the present author. The main reason why the ZINTEC programme was evaluated was to determine the degree to which the purposes, aims and objectives of the programme were being attained.

Instruments and methods used will not be discussed here. Nor is there a detailed study of costs although, as noted above, the 1986 evaluation found ZINTEC’s costs to compare favourably with conventional training. Our concentration is on findings and recommendations which covered areas such as the ZINTEC structures, staffing, student supervision, distance education and the general impact of the ZINTEC programme as a result of implementing findings from the evaluations.

The ZINTEC structures

Following the recommendations of the 1982 evaluation, the Evaluation and Co-ordination Unit moved to the Head Office, Planning Division, Ministry of Education and Culture. The 1982 evaluation report (Chivore and Masango, 1982, p. 3) recommended:

The Evaluation Unit should become part of the Head Office, Planning Division but continuing monitoring such projects as ZINTEC programmes as well as other innovations that may be launched.

Following this recommendation, the Evaluation Unit moved from the ZINTEC National Centre to the Head Office of the Ministry of Education and Culture. At the time of writing, 1991, the Ministry of Education and Culture, and the Ministry of Higher Education have departments in charge of evaluation and research. These departments owe their existence to the humble beginnings of the Evaluation Unit at the National Centre of the ZINTEC programme.

Regional centres and colleges

As already stated, when the ZINTEC programme started, regional centres and colleges were separate from each other. The 1982 evaluation recommended that colleges and regional centres should be united or merged physically and administratively. This evaluation (Chivore and Masango, 1982, p. 37) noted:

ZINTEC colleges and ZINTEC regional centres should be united,
administratively and wherever possible physically. This will facilitate for closer cooperation between the integration of theory and practice, between field and college lecturers; it will facilitate the use of facilities such as libraries, resource centres and so on. Instead of having two libraries, e.g., at Masvingo Regional Centre and Andrew Louw College, there would be one. The same principle would apply to Manicaland, Mashonaland and Matabeleland.

This recommendation was accepted and implemented. At the regional level therefore, all the activities of this programme were (and are in 1991) handled by the college. These activities include the initial two-term course, supervision of student-teachers in the field and so on. Thus the running of the programme was greatly improved.

**Student field supervision**

The supervision of student-teachers by their lecturers formed one of the most important activities in the training of teachers through distance education. It became imperative to evaluate this important element in order to strengthen its operation. The 1982 evaluation revealed that 30 per cent of the student-teachers were visited once per term, eight per cent twice, while 12 per cent had not been visited when this evaluation was carried out in September of that year. This picture was representative of what was taking place in the programme as a whole at the time. Submissions made to the Evaluation and Co-ordination Unit by the field lecturers voiced concern over the inadequacy of the visits. One college wrote: ‘It is impossible to visit students regularly because of the tutor student ratios’. Another college requested ‘More staff to facilitate for more visits to students and more face-to-face interventions with students’. In fact 96 per cent of the students who participated in the 1982 evaluation stated that ‘field supervision by lecturers is inadequate’. This was rated as the most crucial problem by the student-teachers.

In the 1986 evaluation the situation had changed. While supervision was highlighted, this was in terms of quality not adequacy. Lecturers were able to visit students at least five times as was, and is, required by the University of Zimbabwe before certification. But it was reported that lecturers tended to spend more time checking schemes of work and lesson plans rather than assisting students in the reinforcement of concepts, skills and linking theory with practice. This evaluation report (1986, p. 4) stated: ‘The students did not receive adequate supervision from the college lecturers because of shortage of funds, vehicles and understaffing of the colleges’.

These problems were not confined to the ZINTEC programme. They were experienced in conventional colleges as well. Because this became a national rather than a ZINTEC problem, several steps were taken to improve the situation. Local teams consisting of headmasters, senior teachers and education officers were formed to assist in the supervision of student-teachers, especially in
teaching practice. This gave college lecturers time to strike a balance between theory (assignments) and practical teaching supervision when they visited their student-teachers.

**Distance education: modules and assignments**

It was the responsibility of the Evaluation and Co-ordination Unit to pre-and post-test modules produced by the Production Unit. This was essential, particularly at the beginning of the programme, to assess content, relevance and the comprehensiveness of these modules. One simple method used was to request students to underline words and concepts contained in the modules which they did not understand. Students were also requested to define or explain certain key terms such as ‘hypotheses’ and ‘telegraphic utterances’ among others. It was discovered that a number of students could not satisfactorily explain these terms. As the 1982 evaluation states (Chivore and Masango, 1982, p. 103): ‘In their assignments, the majority of students failed to explain terms using their own words’.

It became clear that some of the modules were above the comprehension of these students. Hence the 1982 evaluation (Chivore and Masango, 1982, p. 172) recommended that:

> When writing modules, the Production Unit should put into consideration the fact that a big percentage of our trainees have Grade II qualifications. Work should be written with the ‘readership’ audience in consideration otherwise some of the fine academic and professional work may not be understood by a big percentage of our students. We also have our slow learners.

Added to that was the problem that, at the beginning of the ZINTEC programme, module writers tended to copy directly from their sources such as books. This was mainly because they had not been trained in module writing. With time, experience and training, not only did they improve, but also distance-education modules were revised accordingly to be in line with, and at the level of, the intended students.

On the number of distance-education assignments done while in the schools of deployment, it was established by the 1982 evaluation as well as that of 1986 that some students tended to be late in submitting their assignments. Among the reasons for this included lack of reference materials at their schools of deployment, inability to carry out research, heavy work-load since they were also full-time teachers, and poor postal services in some areas. To correct this situation students were deployed in clusters of at least three per school so that they could help each other as well as to enable the lecturers to see them in groups. In addition, students were deployed in areas where postal services were not only available but also reliable.
We would like to stress that the evaluations that revealed these problems were aimed at improving distance education. Indeed, improvements were implemented, so that training non-graduate teachers through distance education, which was unheard of in Zimbabwe before independence, became a permanent feature. All non-graduate teachers’ colleges, primary or secondary, now train their teachers partly through distance education. As a result the National Distance Education Centre, a by-product of the ZINTEC programme, is now responsible for producing distance-education materials for all non-graduate teachers’ colleges, ZINTEC and conventional, government and non-government.

Non-graduate in-service teacher education

It was noted that due to the inadequate number of visits by college lecturers when supervising student-teachers, local supervisory teams were formed consisting of headmasters, District Education Officers and Education Officers. The 1982 evaluation found that one of the problems was that 68 per cent of the headmasters were academically under-qualified and 70 per cent professionally under-qualified. Some headmasters’ supervision in teaching practice was at variance with new demands and with what students were required to do by their colleges. Because of these weaknesses, the 1982 evaluation (Chivore and Masango, 1982, p. 60) recommended:

It could be to the benefit of education in general and teacher education in particular if headmasters who do not have ‘O’ level qualifications are requested to do so within a specified period of time. For those who may have done private studies up to ‘O’ level but with PTL or T4 qualifications, there is need to have in-service courses that could upgrade them to the level of Certificate in Education (T3) that is standard qualified teacher.

The above recommendation had far-reaching effects. An in-service programme for primary teachers, headmasters and DEOs was started. This course is taught at all government primary teachers’ colleges such as Mutare, Mkoba, Masvingo, Seke, United College of Education and Marymount. It has proved very popular with primary teachers, mainly because of promotion prospects, improved salaries and chances to do further education such as the BEd course.

BEd technical courses

The 1982 evaluation established that the majority of technical/practical subject lecturers in the ZINTEC colleges were non-university graduates. These lecturers were in areas such as agriculture, music, art and craft, metalwork,
woodwork, physical education and so on. This evaluation (Chivore and Masango 1982, pp. 195–6) noted:

A substantial number of lecturers in subjects such as PE, home economics, music, agriculture, metalwork, art and craft are not University graduates. Their chances of becoming substantive lecturers are limited unless they attain university education. The Ministry of Education and Culture should have an arrangement whereby these lecturers are admitted to the BEd course as a priority group doing these subjects under curriculum studies.

This recommendation was not only accepted but also implemented. A BEd programme in practical subjects such as agriculture, home economics, building, woodwork, art and design was started in the then Department of Curriculum Studies. A number of lecturers from ZINTEC as well as conventional primary and secondary teachers’ colleges did this course.

**Education with production/education and the community**

Education with or for production, and education and the community, are, for practical purposes, one and the same thing. In the 1982 evaluation, it was pointed out that some ZINTEC student-teachers were not effective in education with production. Among reasons cited for this state of affairs were: the lack of a clear theoretical conceptual framework needed as a basis for understanding this policy; the absence of a policy document from the Ministry of Education as to what this policy entailed; and the lack of proper teaching of this policy at college level. Education with production meant different things to different people. Consequently ZINTEC student-teachers, as well as those from conventional colleges, were reflecting the confusion prevailing in the country as a whole.

When the 1986 evaluation was carried out, however, the situation relating to involvement in community projects by ZINTEC student-teachers had improved. According to the 1986 evaluation (p. 3) the following was the position:

1. The response indicated that the presence of ZINTEC students in fact improved relations between schools and local communities.
2. Members of the community welcomed the involvement of ZINTEC teachers in community projects.
3. The most attempted and successful community projects were adult literacy, well digging, vegetable growing and tree planting.

Consequently, the 1986 evaluation (p. 4) concluded that ‘Despite implementation problems, community projects involvement is one of the most successful achievements of the ZINTEC programme’.
The positive impact of the ZINTEC programme in community projects was confirmed by various studies carried out by the present author (Chivore, 1988, 1989). But it should not be forgotten that these studies were carried out among ZINTEC student-teachers who were required to do such projects as part of their training. They needed to pass. When the 1990 pilot study was carried out in Harare among certificated primary teachers it was found that these teachers were not effective in education with production. There were some ZINTEC-trained teachers in this pilot study. The pilot study concluded (Chivore, 1990c, p. 31):

that the overwhelming majority of the primary teachers in the pilot study were evaluated and judged as relatively ineffective in all the items that dealt with the country’s political philosophy [of education with production] as this applied to education.

Given the changes in the political philosophical approach whereby trade liberalisation is being stressed, the future of education with production in schools and colleges hangs in the balance.

**New mode of non-graduate teacher education**

The evaluations carried out in the ZINTEC programme and the implementation of the recommendations affected the mode of training non-graduate teachers in Zimbabwe. Already we have noted that distance education became an important element in the training of all non-graduate teachers. Professional and systematic evaluation became institutionalised. New in-service courses as well as BEd practical subject courses started as a result of the evaluations carried out. Yet another important area which came about through the ZINTEC programme was the mode of training non-graduate teachers.

Because of experience gained under the ZINTEC programme, conventional teachers’ colleges changed their pattern and mode of training from three to four years, with the first and third year at college and the second and fourth years in the field as full-time teachers. As the National Report (1984, p. 17) observed:

The success of ZINTEC revealed by the evaluation exercises resulted in the ‘Zintecisation’ of teacher training colleges. In place of the three-year conventional training programme a four-year course comprising the first year residential, second year on-the-job, third year residential and fourth year on-the-job has been instituted.

What was meant by ‘Zintecisation’? In this respect Zintecisation meant that what was done under the ZINTEC programme was extended to conventional colleges. This included training on-the-job with distance education playing a
crucial role, the introduction of education with production in conventional colleges, and so on. The changes in the pattern of training teachers meant more student-teachers could be deployed in the country’s schools than was possible under the three-year pre-independence conventional system. True, in 1988, the country went back to the three-year training pattern but the second year is spent in the field with students being taught through distance education.

**IMPLICATIONS OF ZINTEC FOR OTHER DEVELOPING COUNTRIES**

The ZINTEC method of training teachers, which consists of face-to-face tuition, on-the-job training and distance education, is a viable and effective way of training non-graduate primary teachers. This programme can be utilised while still training. The teachers so trained are competent. In fact, in Zimbabwe, it has been established that they are more competent and effective than teachers trained under the conventional system.

The present author is of the conviction that such a system of training teachers should be encouraged in developing countries, particularly those in Africa. For developing countries contemplating using a similar approach of training teachers, a number of key issues should be recognised. There must be real as opposed to lip-service political support. Without real political support, such an approach will not succeed. At the same time, thorough planning at the beginning of the programme is needed. Some external expertise with similar socioeconomic and sociocultural set-ups might be employed. But experience in Zimbabwe was such that virtually all the staff at the National Centre, Regional Centre, colleges and in the field was home-made, that is, Zimbabwean. External ‘experts’ came for very short periods to assist these Zimbabweans who knew the country.

The involvement of the University of Zimbabwe boosted the status and calibre of the products that came out of this programme. The same should be the case in other developing countries contemplating such innovative programmes. If universities in developing countries are not involved, this may be interpreted as confirmation of the inferiority of these new programmes.

Part of the success of the ZINTEC programme was due to rigorous evaluations carried out which pointed at the weaknesses of and problems experienced in this programme. One commendable thing about evaluations carried out in the ZINTEC programme was that they were candid and did not sweep problems under the carpet. Equally commendable was the fact that the overwhelming majority of these recommendations were implemented. Other developing countries may learn from Zimbabwe’s experiences in this respect. Hand in hand with in-built evaluations are certain basic requirements. These include funding, logistical support services, manpower and equipment which should be made available.

In the past ten years or so, Zimbabwe introduced several experiments in
teacher education. Some of these experiments and innovations were not only noble but also exciting and influenced conventional teacher education as well as general education policies. The ZINTEC programme was the most outstanding and successful.

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Ministry of Education and Culture.
In-service initial training of teachers
BACKGROUND

Brazil has been named Belindia by economist Edmar Bacha. By that he meant a country similar in some aspects to the development level of Belgium coupled with the widespread poverty of India. A country of contrasts, with an excessive concentration of wealth on one side and the poorest pockets of poverty of Latin America in the majority of its territory.

Education and educational policies follow the same pattern. Rich minorities send their children to elite, private schools, and, later on, to the free public universities. The majority of the population send their children to the mass government-run schools. Over seven million of the 32 million school-age children are out of school. In rural areas, where over 30 per cent of the population remains, the typical arrangement is the one-teacher school taught by an untrained teacher. The poorer the area, the worse the quality of educational services delivered.

Educational structure

Being a federal state, Brazil divides educational tasks in a very peculiar way. The central government is in charge of overall regulation and primarily concerned with higher education. Individual states are mostly in charge of secondary schools. Municipalities are responsible for primary education. Under a highly concentrated fiscal policy, the periphery has been increasingly unable to cope with its tasks. The results—which are part of a long history of a country which has never adequately faced its educational problems—is a chaotic educational system for the majority, topped by first-class schooling, including graduate-level education, for the minority.

A recent evaluation of a World Bank funded project in north-eastern Brazil (EDURURAL, 1982) revealed what was already known: over 50 per cent of the students either flunk or abandon school before their second year; less than
15 per cent reach the fourth grade; and, in all cases tested, no student was able satisfactorily to pass a minimum competence exam. Textbooks are rare, the national average in public schools being less than one book per student; school lunch programmes for a starving population correspond directly to the quality of schools: the worst schools get the worst provision. Teachers are typically untrained and unlicensed: the majority of teachers in the North-East, and also in the rural areas of the country as a whole, have only four years of schooling. Their salaries are generally well below the already insufficient minimum wage. In fact, most teachers receive less than one-fifth of the minimum wage, which is not even enough to buy food.

Overall, the country has more than 800,000 acting teachers for a population of over 25 million pupils enrolled in primary schools. The Logos II project was geared to training the 300,000 teachers without minimum qualifications who are part of this group. Even though the states and the central government have been experimenting with various kinds of teacher-training activities for many years, the new project represented a dramatic departure from these earlier attempts.

**Logos**

Logos II was preceded by Logos I, which was an articulated attempt to solve simultaneously a series of problems related to teacher training in the actual conditions of the country. The project was conceived from a very narrow and systemic perspective, incorporating most of the knowledge then (1972) available about educational technology and distance teaching. But the project was realistic enough to submit itself to pre-testing. The results of the pre-testing (Logos I), implemented in the most difficult regions and under adverse conditions, provided the basis for setting up Logos II. The new project was subsequently structured in its present form, as summarised in the following section.

**LOGOS II: SCOPE OF THE PROJECT**

Logos II was aimed at offering in-service training for unqualified and unlicensed teachers. Initial plans called for partial implementation in five states, enrolling up to 49,000 teachers, under a carefully controlled system. If successful, the project would then be extended to other interested states. The five states initially participating decided to implement the project in the majority of their territory, thus providing opportunities for many of their teachers. Each state planned for a progressive implementation.

Shortly after the first groups finished the programme successfully, initial resistance was overcome, and tremendous pressure was exerted by many states on the Ministry of Education, to expand the project quickly without waiting for the results of the evaluation. The Ministry decided to expand the project and
Centro de Educação Tecnica de Brasilia (CETEB), the agency in charge of implementation, had to adapt itself to meet new challenges.

The following is a brief description of the main characteristics of Logos II.

**In-service training**

To succeed, the new project had to meet teachers where they were. Previous attempts had failed, in part, because most teachers could not leave their homes or classrooms to attend training sessions. Logos II’s answer was an in-service training programme that teachers could follow without leaving their posts. Moreover, curricula and guidelines were made relevant to their daily classroom activities.

A few basic requirements were established. First, only working teachers could enrol: second, their administrative superiors (generally the municipalities) formally agreed to increase the teachers’ salaries and/or give them a more stable position after successful completion of the programme. Teachers would study mostly by themselves, under the supervision of learning centres set up in a few places.

**Curriculum content**

Most teachers had not even completed primary school (four years of education). Logos II had to make up for both basic schooling and specialised teacher training. The curriculum, in fact, corresponds to the last four years of primary school plus three years of secondary education, including the pedagogical disciplines. Thus, the overall contents were split into two major parts, general studies and educational studies. Table 4A.1 (p. 93) in the Appendix to this chapter illustrates this division and presents information on the number of learning modules required for each subject.

Every module had its own pre- and post-tests (in three forms). Participants could go on from one module to the next and from one discipline to the next on the basis of success in the competence-based exams. To pass an exam, participants had to answer correctly over 80 per cent of the questions. There were no final exams.

**Self-pacing**

Individualised instruction was coupled with self-pacing. Participants could move on as they saw fit. To accommodate this, the curriculum was divided into subjects, or disciplines, and each discipline into specially prepared learning modules for individualised instruction. These came in various sizes, forms, and levels of complexity, but obeying the general pedagogical
principles of Logos II. Participants could choose to follow one or more disciplines at a time, according to their own background, motivation, available time, and ability to pass the exams. The only sequencing was within a given discipline, where modules had to be taken in order. Most of the study was done at home.

**Learning centres**

Logos II was designed for teachers working in the rural areas. A central city with minimum conditions was chosen as a learning centre whenever a certain number of teachers—50 or more—was enrolled. Each learning centre was led by a monitor, recruited locally within the regular school system.

At the centre, the participating teachers would engage in several activities: registration, pre-tests, post-tests, solving specific problems, obtaining additional modules, meeting with other colleagues, participating in group activities, and so on. The centres were located in rooms provided by the municipality, and were generally similar in size to classrooms. A typical centre had a few chairs and tables, shelves for stocking the modules and tests, a very small library, and the administrative materials necessary for record keeping.

**Microteaching**

Microteaching was a substitute for direct supervision. Distances, shortage of resources, and lack of qualified personnel were among the reasons for dropping initial attempts at direct supervision of teachers in their own classrooms. Five skills were considered essential for the teachers to master: providing diverse stimuli, increasing verbal communication, using reinforcements, illustrating with examples, and increasing pupils’ responses in the classroom. Every participant was required to prepare and present an actual lecture, after which he or she would receive feedback from their peers and the monitor. Special modules were prepared to introduce the teachers into the technique and help them to plan their classes better according to pre-defined teaching strategies.

In short, Logos II was conceived as a distance-learning in-service training programme combining basic and technical education, allowing student-teachers to apply recently acquired learning directly in their classrooms. The project attempted to give teachers the maximum flexibility to choose specific disciplines to study at any given time, as well as to choose the amount of time spent on each module.

How Logos II was implemented and what happened as a result of it is the subject of the next section.

**THE PROCESS OF IMPLEMENTATION**

The participating teachers must basically work through modules and pass the corresponding exams. For each module there are specified objectives.
Participants can choose to take a pre-test if they think they have the necessary knowledge. Otherwise, they may take home as many modules as they wish to study. After a few weeks they come back to the centre in order to take tests, to look for specific information or guidance and to obtain new modules.

Other activities include the microteaching sessions, once-a-month group meetings for social purposes, special tutoring in the most difficult topics, expressive activities, (music, arts, and so on) and civic celebrations. In a few cases, teachers meet in small groups to study together or to learn from a colleague who is further ahead in some series, discipline or subject.

Distances and isolation can be an obstacle to these interactive sessions. The average distance between teachers’ homes and the learning centre varies from two or three to 20 or more kilometres. In many cases, there is no regular public transport, and participants may need to walk for a few hours, usually at night, to reach the learning centre.

Studying is a major challenge. Enrollees typically work in two shifts and some of them also teach adult literacy courses by night. The majority are also housewives and mothers. In rural areas, this means not only the usual domestic chores but also, while the man goes farming, the wife has to feed the animals, take care of the water supply, dispose of the garbage, and undertake myriad other tasks. Being a community leader, the teacher is frequently involved in meetings, vaccinations and other health campaigns, family counselling, and so on. Husbands are not always tolerant and compete fiercely for the wife’s time. Logos II takes from 30 to 50 months of their ‘spare’ time. Study rooms are house tables; a dictionary is a valuable rarity; a library, a dream. On the average, teachers study from nine to ten hours a week, generally after the children go to bed.

The system can be divided into three segments: local, state and central. The first level is the learning centre, where the key figure is the monitor. Monitors are recruited locally under a screening process which combines minimum technical prerequisites in schooling with political appointment. Monitors should have at least the secondary-school diploma—not always available—and, preferably, some managerial experience in education (as librarian, supervisor, school lunch director, and so on). Monitors do almost everything from sweeping the floor, to convincing the mayor to support the project, to getting someone to fix a broken desk. Monitors teach students individually and in groups. They work six days a week, including weekends, when teachers have more spare time. They also manage the microteaching sessions and organise the monthly meetings. They get support from the community in the form of food for the teachers, preparation of civic or religious celebrations, recruitment of specially skilled teachers to volunteer for tutoring in mathematics, English, or social studies. They keep detailed records on each student, using an elaborate system of data gathering and reporting, besides their own personal notebooks. They give emotional support to students and their families; they receive visitors from state and central authorities who come for supervisory activities; they fill in a variety of forms
and reports; and they participate in training sessions and project review meetings from time to time. For those tasks, experience has shown that the most successful monitors need to establish and maintain very good relations with the local community and to have a good managerial ability. More than those qualifications, a key to success is the degree of commitment to the project and to the students, for otherwise they receive no extra pay for that much extra work.

The second level is the state co-ordination. Every state sets up a group which varies in size from five to 20. This group is in charge of implementing the project locally. That means establishing priorities for setting up centres, establishing contacts with the mayors and educational authorities, recruiting and selecting students and monitors, training their personnel (as well as the monitors), supervising the operations of the system, channelling information to the central headquarters, as well as making sure that every centre maintains an adequate stock of modules, tests, and all forms and supplies necessary for the smooth operation of the project. State co-ordinators play an important mediating role between local political pressures and technical requirements. Since Logos II accepts only acting teachers as students, when a teacher is dismissed, he or she is also disconnected from the project. Avoiding such situations is a major activity of middle-level management. At the state level, this co-ordinating group has to interface with the State Secretariat of Education and the local Education Board on matters related to project financing and accreditation.

The third level is split into two segments. Overall monitoring, financing, and final decision making is the responsibility of the Ministry of Education. In the present case, a small staff of three was in charge of the project. Their activity consisted mostly of reading the reports, passing on recommendations, suggesting modifications, and deciding on which states would get what amount of money. They were also responsible for funding CETEB’s activities, which are explained below. Finally, this group was in charge of the computerised information system, which never managed to produce reliable data throughout the project’s life.

Under the Ministry’s co-ordination is CETEB, the private educational organisation hired to co-ordinate and implement Logos II. Its functions included: overall implementation; setting up learning centres; structuring state co-ordination and training their personnel; training for co-ordination, supervision and monitoring of the learning centres; supervision, implementation and data gathering in the field; writing reports; evaluating on-going activities; proposing expansion, changes or other measures, and solving problems as they arose. An important task of CETEB consisted of the production and constant revision of printed materials. For that purpose, a team composed of subject-matter specialists, distance-teaching experts and educational technologists was gathered for the task of writing the modules for the various disciplines. As the project progressed, feedback from the field was integrated into the revision of the materials. Producing, printing, and
distributing modules throughout the country was, in itself, a major logistical accomplishment. Delays were avoided, since they would compromise the best efforts of monitors to get participants moving through the modules.

**COSTS**

It is currently common practice to make a distinction, in distance-education projects, between two major categories of costs: fixed and variable. Variable costs are so called because they vary with the number of students.

**Fixed costs**

The fixed costs include the cost of preparation of the study units (booklets) and the administrative costs incurred by the Ministry of Education and Culture (MOEC) and CETEB (Table 4.1).

*Production of booklets*

The first edition of the booklets prepared in 1976–77 was written by teachers who were paid about Cr$2,000 per booklet, making a total of Cr$400,000. The second edition, in 1978–79, used the same booklets, which were simply revised to a limited extent by CETEB itself. For the third edition in 1980–81, some substantial revisions were done and were paid for at the rate of Cr$1,000 per booklet, together with a complete rewriting of some booklets and the addition of new ones, at a cost of Cr$6,000 each. The total cost of these changes and additions is estimated at Cr$80,000. The Cr$400,000 spent in 1976–77 is equivalent to Cr$2.48 million in 1980 cruzeiros.1 If we add to this figure the Cr$80,000 for the third edition, the total production cost of the three editions amounts to Cr$2.56 million. The number of copies printed was 12,000 for the first edition, 17,000 for the second and 22,000 for the third, making a total of 51,000 for a unit production cost of Cr$50 per booklet.

*Central administrative costs*

About ten CETEB staff members are working with Logos II. The annual payroll cost amounts to Cr$10.5 million, including the institution’s overheads.2 There are also expenses of Cr$1.5 million for travel to the States. A substantial part of the worktime of the CETEB team, when the project was started, was devoted to preparation of the booklets. This is becoming a progressively smaller burden, as far as time is concerned; over the whole period it is estimated at 40 per cent. For the six years of work to produce six editions a cost of 24/60 of the remuneration of the team can be assigned, that
In-service initial training of teachers

is, Cr$25.2 million (1980 cruzeiros). This gives a figure of about Cr$500 per series of booklets to be added to the Cr$50 mentioned above. The costs of administration and supervision, properly speaking, incurred by CETEB are:

\[
10,500,000 - \left(40 \times 10,500,000\right) + 1,400,000 = 7,700,000
\]

Administrative costs of the regional offices

The size and composition of the offices vary from state to state, particularly with regard to the teaching centres. The number of people working in the offices varies from one to 25. These are usually staff working in the state secretariats of education and there are, therefore, no additional costs for office space. In some cases, however, they have premises of their own for which the rental costs must be included.

From the data obtained from seven of the ten regional offices, we can extrapolate the total costs, which, for 1980, amount to Cr$7.525 million.

Variable costs

The variable costs are of two types: the printing of the booklets and the operation of the project offices in the states (in addition to the basic centre in each state which we have treated as a fixed administrative cost).

Printing of booklets

Each student receives 205 booklets averaging 30 pages each, that is, a total of 6,090 pages. Printing is contracted through competitive bidding. For the first edition the average cost per booklet printed was Cr$5, for the second Cr$8,
and for the third Cr$12. These figures include the cost of distribution of the booklets to the Logos II office in each state. It should be emphasised that inflation has outpaced the cost of printing and that a cost of Cr$12 is very low. The total cost of printing a complete series is Cr$2,500, representing a cost per page of Cr$0.4 (1980).

Operation of the teaching centre

The pay received by the monitor of the teaching centre varies from one state to another. The states that joined the project most recently tend to pay higher rates than those involved in the pilot phase. Currently, the rates vary between Cr$6,000 and Cr$20,000 per month (including social security). Moreover, the average number of participants at each centre varies from 30 to 70, depending on the state. It is not possible, therefore, to calculate a uniform variable cost, for which reason Table 4.2 gives different costs, varying in relation to the number of participants and the salary of the monitor. As can be seen the cost per participant is very sensitive to variations in these two parameters (it can vary by Cr$1,000 to Cr$8,000), but the most frequent cases are those where there are about 50 teachers participating in the centre and the salary of the monitor is Cr$10,000, giving an average cost per teacher of Cr$2,400.

Table 4.2 Variable cost per participant per year (Currency: 1980 cruzeiros)

<table>
<thead>
<tr>
<th>Monthly pay</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>6,000</td>
<td>2,400</td>
</tr>
<tr>
<td>10,000</td>
<td>4,000</td>
</tr>
<tr>
<td>15,000</td>
<td>6,000</td>
</tr>
<tr>
<td>20,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

Other operating costs of the centre

Premises: The arrangements made are extremely varied and we have no precise data from which the local costs could be estimated. Logos II frequently occupies offices in public premises on a temporary basis and it is difficult to work out the real cost.

Running expenses of the centres: We were not able to obtain usable data from the offices on this point. The main expense is transportation for the monitor and, as far as we were able to estimate, the annual cost was equivalent to one month’s salary.
Student transportation: The means of transportation varies. The most frequent answers to a questionnaire we sent out to the regional project managers about student transport were as follows: on foot, horseback, a vehicle belonging to the local authority, personal means of transport (for example, bicycle), bus, or other means. Unfortunately, the answer given in 75–90 per cent of the cases was ‘other means’, which seems somewhat strange; any estimate based on this information would be suspect and we have therefore thought it better to omit this cost entirely.

**Cost analysis** (1980 cruzeiros)

**Annual costs**

Total cost = fixed costs + variable costs × number of participants.

Total cost = 19,850,000 + CV × N.

Total cost = 19,850,000 + 4,900 N (24,400) (based on a variable cost of 2,400 per monitor and printing costs of 2,500) 1988 US $532,974 + 131.57 (24,400).

**Unit costs**

Cost of one student completing the course in 30 months (or 2.5 years):

Cost of booklets:
- production: 500
- printing: 2,500

Administrative costs (for 24,400 students during length of course)
- 625 × 2.5 years: 1,560
- Monitor (2,400 × 2.5): 6,000
- TOTAL: 10,560

Cost of one student completing the course in 48 months (4 years):

Cost of booklets:
- production: 500
- printing: 2,500
- Administration: 3,125
- Monitor: 9,000
- TOTAL: 15,125 (1988 US $406.11)

**RESULTS**

Each regional office, at the state level, collects a certain amount of information on the participants (sex, age, initial schooling, teaching experience, type of school, salary before enrolment in Logos II, cumulative number of modules achieved—approximately every six months) and on their monitor (sex, age, schooling, teaching experience, class size).
For the purpose of the present study, we had access to the data collected by two states: Rio de Janeiro, rather better off in many respects, and more representative of the southern half of Brazil; and Piaui, one of the poorest states in the north-east part of the country. We took the cohort which entered into the system in early 1980, most participants of this cohort having either completed the 205 modules or dropped out.

### Basic characteristics of the participating teachers

The sample contains 1,561 participants of whom 90 are male (5.7 per cent). When the state of Rio de Janeiro is considered separately, the proportion of males is only 1.2 per cent. It must be remembered that the social status of primary teachers in Brazil is extremely modest and, as elsewhere, this pattern leads to a high proportion of women. Of the sample, 326 participating teachers belong to the State of Rio and 1,291 to Piaui.

The age profile (see Table 4.3) is quite different in both states. Seventy-five per cent of Rio’s teacher participants are above 35, while 70 per cent of Piaui participants are below this threshold. This reflects the fact that in Rio teachers hired during the past two decades were reasonably well-qualified and only older ones need significant retraining. This improvement is not yet visible in Piaui, where schooling is not universally distributed, and where new teachers are quite often poorly qualified.

Theoretically, requirements for primary teachers are achieved after 11 years

### Table 4.3 Age by state

<table>
<thead>
<tr>
<th></th>
<th>&lt;20</th>
<th>20–24</th>
<th>25–29</th>
<th>30–34</th>
<th>35–39</th>
<th>40–49</th>
<th>50+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rio</td>
<td>13</td>
<td>27</td>
<td>27</td>
<td>20</td>
<td>46</td>
<td>109</td>
<td>83</td>
<td>325</td>
</tr>
<tr>
<td>%</td>
<td>4.0</td>
<td>8.3</td>
<td>8.3</td>
<td>6.2</td>
<td>14.1</td>
<td>33.5</td>
<td>25.5</td>
<td>100</td>
</tr>
<tr>
<td>Piaui</td>
<td>58</td>
<td>449</td>
<td>337</td>
<td>177</td>
<td>97</td>
<td>97</td>
<td>21</td>
<td>1,236</td>
</tr>
<tr>
<td>%</td>
<td>4.7</td>
<td>36.3</td>
<td>27.3</td>
<td>14.3</td>
<td>7.8</td>
<td>7.8</td>
<td>1.7</td>
<td>100</td>
</tr>
<tr>
<td>Together</td>
<td>71</td>
<td>476</td>
<td>362</td>
<td>197</td>
<td>143</td>
<td>206</td>
<td>104</td>
<td>1,561</td>
</tr>
<tr>
<td>%</td>
<td>4.5</td>
<td>30.5</td>
<td>23.2</td>
<td>12.6</td>
<td>9.2</td>
<td>13.2</td>
<td>6.7</td>
<td>100</td>
</tr>
</tbody>
</table>

### Table 4.4 Years of schooling

<table>
<thead>
<tr>
<th></th>
<th>N/A</th>
<th>1–4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rio</td>
<td>9</td>
<td>81</td>
<td>76</td>
<td>17</td>
<td>18</td>
<td>103</td>
<td>26</td>
<td>325</td>
</tr>
<tr>
<td>%</td>
<td>2.8</td>
<td>24.9</td>
<td>23.4</td>
<td>5.2</td>
<td>5.5</td>
<td>31.7</td>
<td>8.0</td>
<td>100</td>
</tr>
<tr>
<td>Piaui</td>
<td>59</td>
<td>793</td>
<td>90</td>
<td>60</td>
<td>37</td>
<td>240</td>
<td>14</td>
<td>1,236</td>
</tr>
<tr>
<td>%</td>
<td>4.8</td>
<td>64.2</td>
<td>7.3</td>
<td>4.9</td>
<td>3.0</td>
<td>19.4</td>
<td>1.1</td>
<td>100</td>
</tr>
<tr>
<td>Together</td>
<td>68</td>
<td>874</td>
<td>166</td>
<td>77</td>
<td>55</td>
<td>343</td>
<td>40</td>
<td>1,561</td>
</tr>
<tr>
<td>%</td>
<td>4.4</td>
<td>56.0</td>
<td>10.6</td>
<td>4.9</td>
<td>3.5</td>
<td>22.0</td>
<td>2.6</td>
<td>100</td>
</tr>
</tbody>
</table>
In-service initial training of teachers

Table 4.5 Years of teaching

<table>
<thead>
<tr>
<th></th>
<th>N/A</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rio</td>
<td>No.</td>
<td>7</td>
<td>54</td>
<td>35</td>
<td>29</td>
<td>73</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.2</td>
<td>16.6</td>
<td>10.8</td>
<td>8.9</td>
<td>22.4</td>
<td>39.1</td>
</tr>
<tr>
<td>Piaui</td>
<td>No.</td>
<td>143</td>
<td>837</td>
<td>175</td>
<td>47</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>11.6</td>
<td>67.7</td>
<td>14.2</td>
<td>3.8</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Together</td>
<td>No.</td>
<td>150</td>
<td>891</td>
<td>210</td>
<td>76</td>
<td>91</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.5</td>
<td>57.1</td>
<td>13.5</td>
<td>4.9</td>
<td>5.8</td>
<td>9.2</td>
</tr>
</tbody>
</table>

of schooling (see Table 4.4), and Logos II provides an equivalency corresponding to the seven final years, which means that in principle Logos II participants should have finished at least the first four years. Actually, 56 per cent of the participants had fewer than four years of schooling. In Rio, however, three-quarters of students have received more than four years of initial schooling which again illustrates the relatively better situation there.

The teaching experience (see Table 4.5) structure is close to the age structure. Logos II participants are more experienced in the state of Rio, where they are older (almost 40 per cent have taught for more than 20 years). On the other hand, in Piaui, two-thirds have only between one and four years’ teaching experience and one per cent have more than 20 years.

If one compared the characteristics of Logos II teachers with those of other primary-school teachers, one would find the same extremes illustrated by the cases of Rio and Piaui. Even though age and years of experience are fairly similar, years of schooling are the major difference: the richer states in the south and the state capitals will have a majority of teachers with secondary-school level plus teacher training. However, even in the rural areas of states like São Paulo (the richest one) one would find a considerable number of practically illiterate school teachers. The more backward the state, the lower the salary, and, consequently, the less qualified the teachers.

Table 4.6 gives a rather dramatic perspective of the salary structure of primary teachers in Brazil. In Rio de Janeiro, the modal salary is about 5,000 cruzeiros, which represents, at the 1980 exchange rate of 52.5 cruzeiros per US dollar, around US $100 per month, or $1,200 a year, near the average GNP per capita in the country, but much below the GNP per capita in Rio state. In Piaui, the overwhelming majority of teachers receive less than 2,000 cruzeiros, or US $38 per month, for an average of about 1,000 cruzeiros (US $19), and here again, it is less than the average GNP per capita in this state. Such low earnings are partly due to the insufficient qualification of the teachers and may explain the motivation of candidates for Logos II, which will place the teachers on a higher salary scale, although a modest one by international standards.

Pass rates are surprisingly high. As shown in Table 4.7, almost 80 per cent have graduated from Logos II. The pass rate is better in Piaui, where teachers
are younger, and therefore probably more motivated, since the benefits of the retraining will last for longer.

As pace is determined individually, there are wide variations between students. The average number of modules completed for programme graduates is 6.78 modules per month, which is near the average expected by the initiators of the system. It must be recognised that a significant proportion of participants, about 40 per cent, had already completed more than four years of schooling, which means that they have already learned part of the curriculum they are now learning.

The pace observed since 1980 is better than that found by earlier evaluations,^4
which noted that half of the participants required 60 months to complete the programme instead of the anticipated 30. This had a strong impact on costs, since the monitor had to be paid for twice as much time, even if only a few late teachers remained in the system. Apparently, regional offices have successfully dealt with this problem (see Table 4.8).

The pace is far from being stable over time. For those who have graduated, the average number of modules per month was between one and two for the first six months, between three and four for the next six months, between five and six for the third six months period, and above seven for the remainder, which lasted from 12 to 24 months (an average of 18).

Those who dropped out began at the same pace, but completed only two to three modules during the second six-month period and slightly more than three during the third. After eighteen months they had finished an average of 40 modules, one-fifth of the requirement and, with only 18 months remaining, completion was simply not achievable. Consequently, the slow pace at the beginning is not a problem, as long as the acceleration rate is sufficient to reach to a pace of six to eight modules monthly after eighteen months.

Some factors influencing success

Using success (or failure) as a dependent variable, we have run some logistic functions, with independent variables put under the form of dummies (see Table 4A.2 in the Appendix).

The main conclusions of this exercise are the following:

– The likelihood of success is significantly higher in the State of Piauí than in the State of Rio de Janeiro.
– Participants with five or more years of schooling have a greater chance of completing Logos II.
– The sex of the monitor has no significant impact, but teaching experience has a highly significant positive influence.
– The teaching experience of the participants is positively related to success, but only after six years.
– The optimal age for participants is around 21–22, and the worst is just below that age.
– Participants with the lowest or the highest salaries have poorer results than those near the average. It may be that motivation is too low for those with the highest salaries, and the lowest salaries may seem to offer little future.

EFFECTIVENESS

With a pass rate close to 80 per cent, after some four years of running a centre with its monitor, the actual cost per graduate remains slightly below 20,000 cruzeiros, or US $380 (1988 US $538). How does this figure compare with some alternative projects?
Comparison with a similar project

In the Brazilian context, Logos II used to be in close competition with the Hapront project, very similar in its format, but implemented on a much smaller scale. Its costs were as follows (1980 cruzeiros):

**Fixed costs**

Production: (250 units at Cr$2,500 in 1975–76, that is, CR$625,000 in 1976 cruzeiros)

<table>
<thead>
<tr>
<th>Fixed costs sub-total</th>
<th>Per participant/ 3 years</th>
<th>Per participant earning diploma (70%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration:</td>
<td>3,875,000 (1980 Cr)</td>
<td>1,440,000 (1980 Cr)</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>5,315,000 (1980 Cr)</td>
<td></td>
</tr>
</tbody>
</table>

Variable costs

Printing of booklets: Each participant received 250 booklets over a period of three years, with an average of 35 pages per booklet; the unit cost was Cr$45 (1980 cruzeiros) making the total cost for the 8,750 pages Cr$11,250. Since the distribution costs are negligible, the cost per page was Cr$1.30.

Operating costs of the centres: There was one tutor for 50 participants, with a monthly salary of about Cr$50,000, paid by the state, and a supplement of Cr$3,000 out of project funds. The total cost amounted to Cr $216,000, giving a cost per student of Cr$4,320. The project used premises in schools or public buildings, the opportunity cost of which may be regarded as nil.

Although the fixed costs of the Hapront project (see Table 4.9) are significantly less than those of Logos II, the fixed costs per participant are higher because of the limited number of participants compared with the Logos II project.

Similarly, the costs of reproducing the booklets are much higher since, because of the limited number of copies, there can be no economies of scale with the methods of reproduction used.
In spite of these disadvantages, the total cost per Hapront-trained student is not impossibly high, thanks to the relatively rapid rate of progress imposed on the students and also to the high success rate, which makes it possible to limit the variable costs of the monitors. With a cost per student trained of Cr$44,500, the Hapront project comes in at about twice the estimated cost per student trained by Logos II.

Comparison with the traditional education system

Secondary school (Ginasio): The estimated cost of the books needed for the four years of the second cycle of the first level (grau) is Cr$4,000–6,000 (1980) and of those for the second level (grau) is Cr$3,750–10,500 (five to ten books at an average price of Cr$300).

The total cost of books varies between Cr$7,750 and Cr$16,150. For the Hapront project the cost is Cr$11,250 and for Logos II Cr$3,050.

In the traditional school system there is typically a wide variety of costs among institutions, as well as notorious differences in quality. Although in the public schools the costs may not be much more than Cr$10,000 per student, it is not unusual for a private school to charge over Cr$40,000 per student per year (cost in 1980). We may compare the Logos II student with a student in a medium-cost school, assuming a cost of about Cr$20,000 a year, that is, a total of Cr$140,000 over seven years. Allowing for repeaters and drop-outs, the cost for a student trained in the traditional school system can easily be as much as Cr$200,000, which is ten times the cost per participant obtaining a diploma from Logos II.

Last but not least, Logos II has the advantage of being an in-service teacher-training system, which avoids, for the individual, loss of an income.

To conclude, Logos II is clearly, from an economic perspective, a highly cost-effective system for training Brazilian primary teachers.

IMPLEMENTATION OF INNOVATIONS: SUCCESS AND FAILURE

Most of the features of Logos II were innovative, at least in Brazil. The major innovative feature is the structuring of the project itself, as an in-service teacher-training model coupled with individual learning and to the individual’s career. For the purposes of the present chapter, we shall comment on a few innovative characteristics which might suggest examples and lessons for similar projects.

The management of motivation

Most educational technology innovations fail because they do not adequately take motivation into consideration. Logos II has learned that important lesson.
First of all, the monitors must be constantly motivated. The process starts with recruitment and selection, which cannot be done in a very formalised and bureaucratic manner. Training was a major instrument for the tasks of initial socialisation and indoctrination. But permanent supervision was the key. In spite of being tightly controlled by reports, files, memos and direct supervision, the monitors enjoyed a considerable degree of freedom and had a very peculiar job as far as teaching is concerned. Being in contact with outsiders, including people from the federal capital, gave them high visibility and prestige. It remains a question whether one would keep such motivation and involvement when the project becomes more institutionalised and bureaucratised. So far, experience shows that monitors prefer either to continue as such or to move into administrative tasks. They no longer seem to fit back into the traditional classroom after Logos II is over.

The second aspect is the motivation of participants. Motivation is crucial to keeping them in the project, not to mention having them learn something. Curriculum relevance and immediate applicability of knowledge and skill may help. One important feature of Logos II seems to be the freedom to choose modules and disciplines. Apparently, this gives the teacher the opportunity to see success in the very first steps, raising their confidence, which is important for an undertaking of this nature. So far it seems that control by success and external reinforcement to maintain pace is a better strategy than forcing all students to follow a more structured programme.

Two other motivational tools deserve comment, and both are related to group activity. Typically in distance-learning projects, students complain about the lack of group instruction and opportunities for socialisation. In the present case, in addition to the contacts that participants can have with the monitors at the learning centre, they did manage to establish small study groups with their neighbours. One manifestation of such groups consisted of peer tutoring, and it is supposed that, besides contributing to their colleagues’ studies, tutors would also gain in terms of motivation, prestige and self-image, thus increasing their own performance in the course.

Another important tool was the socialisation activities developed during the monthly meetings. The songs, poems, speeches and personal statements reveal the strong emotional attachment of students to each other and to the project. Spontaneous bonding was carefully channelled by the monitors in order to maximise motivation and enthusiasm towards the project.

The management of time

Time is a matter of great concern in a project in which teachers can proceed at their own pace. Spending 30 to 50 months of an adult’s life in any activity is a terribly long time. Economists keep worrying about shortening training time, and so do educational administrators. The teachers would rather finish their course more quickly.
Logos II is very demanding in terms of time. Theoretically it expects students, proceeding at their own pace, to complete 205 modules in 30 months, which means an average of 6.8 modules a month. A more realistic expectation—which is also closer to empirical data—would set 50 months as a good average, given that students can rarely devote more than ten hours a week to the project.

Given the pedagogical flexibility, Logos II devised strategies to keep teachers at a good pace without taking away their freedom to choose, which is important for motivation and for enhancing their sense of responsibility and control of their own fate. Emulation, competition, prizes, peer tutoring and individual counselling were among the devices used to keep teachers on the expected track. In one case, the mayor gave a financial bonus for every seven modules completed in a given month, and the response was very positive.

Time can also be saved in other ways. The curriculum has been split into three parts, corresponding to primary school, secondary school, and specialised teacher training. By showing their diplomas or taking entry tests, students can enter directly into an upper level.

So far, Logos II seems to be demonstrating that flexibility can be achieved at the same time as satisfactory performance in terms of learning, motivation, pace, and completion rates.

**The management of environment**

Teacher training is part of a context. Teachers need to be trained, in Brazil, because most have never had a chance to go to a teacher-training institution, not even a secondary school. They belong to a low-paid, low-prestige profession working under extremely bad conditions.

Logos II, within this context, is a very strong candidate for being a victim of its own success. So far, most of the participants who manage to graduate refuse to remain in their previous situation as rural school teachers. They either go to the university or lock into better positions within the educational system.

Unable to manage the environment, which is structurally hostile in this regard, the best one can hope for is to wait for the market to saturate. In the future, the surplus might supply teachers with no alternative except to teach in such schools—which will hopefully present better teaching conditions to a more professionalised class.

**The mastery of distance-learning technologies**

Structures, political conditions, adequate funding, luck, timing and chance are a few important ingredients for project success. People are another. However, it is very difficult to evaluate people’s effectiveness and their direct contribution to overall results. A well-connected politician may be more crucial, at some times, than the best of the experts. A dedicated supervisor can be more efficient than a powerful manager.
Two aspects of Logos II’s staffing deserve comment. First, Logos II suffered neither from excess staff nor from over-management, both characteristics of large-scale projects. As observed earlier, headquarters were kept to a minimum. Project directors, at the Central Ministry, were relatively low-key people, not important enough to be in evidence and challenging on an everyday basis.

Second, besides having a small staff at headquarters and state-based centres, the project managed, through training, to develop a fairly competent team. Local leadership, which varied in the different states, contributed to make the difference in those cases in which the project was more effective.

Beyond personal characteristics, the exercise of managerial and technical skills and talents was made possible within an organisational framework which evolved from a highly centralised operation to one with a fair amount of decentralisation and considerable room for discretion.

Logos II is a good example of competent implementation. CETEB was already familiar with the technology of adult distance education. It did know about printing educational materials. Professional management made it possible to run the project with a fixed staff of under 20 people. Before implementing Logos II, CETEB already knew about individualised instruction, distance learning, competence-based education, training, microteaching, and a few other technologies. Such previous knowledge contributed to the successes obtained: while Logos II undoubtedly presented new challenges, not everything was entirely new.

Centralisation, decentralisation and grass roots

The issues of centre-periphery are magnified in a country like Brazil. Several factors militate in favour of centralisation. The federal government was very powerful, both politically and economically, when Logos II was conceived. Teacher training was a natural mission to be undertaken by the centre. Talents were in the centre, the best people were concentrated around the federal ministry. Quality, high-level, and overcoming local deficiencies were synonymous with ‘federal’. Getting money depended on the will of the federal people. The country, in spite of the tremendous differences in social conditions, climate, geography, and the ethnographic and cultural backgrounds of the population, enjoys some shared characteristics, starting with a unique and rather uniform language (Portuguese) and a fairly strong sense of national identity. Educational legislation and curricula have differences in emphasis, but not strong enough to discourage centralised educational efforts.

From such a background emerged the systematically designed and well-planned Logos II project. Everything was planned in advance: curricula, activities, operational guidelines, training, setting-up of the project, negotiations with local authorities, evaluation schedules, and so on, including the institution-building of local capacities to implement and manage the project at the local level.
The main actors of centralisation, however, were not at the centre: the ministry did not involve itself in the planning and implementation phase. A private institution with previous background in the field was in charge of making things happen. A familiarity with grass-roots problems and experience of the importance of local involvement in order to get things done may have contributed to sowing the seeds of decentralisation.

As the project progressed into the implementation phase, reactions started to emerge. State authorities wanted more say in the curriculum in order to adapt it to what were perceived as local needs and peculiarities. Forms were found to be too cumbersome to be filled in. Centrally prepared distribution and logistics schemes did not always meet the anticipated results. In their daily practice, monitors started adapting general guidelines and even specific instructions into feasible and more realistic activities.

A few examples illustrate the dialectics of decentralisation. The use of microteaching and the social sciences curricula are two cases in point. In the earlier phases of the project, it was planned that a supervisor would visit classrooms from time to time in order to help student-teachers improve their practical skills and make sure that the content and teaching skills of the project were being introduced in actual classroom practice. When this alternative became impossible due to financial constraints and lack of adequate personnel, the headquarters decided to replace the field-based supervision by microteaching sessions. Microteaching, however, was too much of a novelty, and the rigidity with which it was introduced and the perceived difficulty of meeting its requirements caused very strong reactions from the base. At first the centre did not accept any changes, but as time passed and pressure increased, it started accepting adaptations and changes.

Social studies made a good case for decentralisation. Even though it was planned beforehand, the actual preparation of content required a much stronger interface with each state. This process made the introduction of several other modifications in the project possible through the dialogue that was opened around the discussion of the local social studies activities. Moreover, states tried to leave additional room for adaptations at the municipal or rural level, which became increasingly acceptable by an initially reluctant centre.

At the macro level, political changes contributed to make Logos II a less centralised project. Decentralisation became a big word in every sphere of political and economic activity, including the education sector. States fought for more discretionary resources and more autonomy. It became chic to criticise the centre and centrally conceived larger-scale projects and interventions—most of which, indeed, were big mistakes with fairly poor results and high costs.

Responding to pressures and also as a consequence of the institution-building process at the state and local level, it was possible progressively to decentralise Logos II. The first step consisted of transforming CETEB into an advisory agency, with two main tasks: producing the contents and giving
technical assistance to the states, on request. The Ministry of Education gave up the idea of evaluation and centralisation of the accreditation process as states became legally empowered to perform these functions.

Not much is known about the results of the ongoing decentralisation of the project, in part because of the lack of interest and the difficulties of gathering data in each of the states. Verbal information collected by CETEB’s technical staff seems to indicate that a few states are replacing not only the actual contents, but also the whole operational structure of the project. Since there is no means of imposing quality controls, it remains a challenge to evaluate the advantages and the shortcomings of the project in terms of operational efficiency and learning. Also nothing is known about the cost implications of the new arrangements. Under the present political circumstances CETEB apparently did the most it could to build up local capacities, but there is no way to ensure that political winds do not come by and destroy entire groups, as has already been the case in a few states. In another known case, the decentralisation of Logos II made it possible to incorporate some of the project’s ideas and materials into other teacher-training activities of the educational sector.

Organisational learning and technology transfer

A fair analysis of the implementation of Logos II has to distinguish at least two phases. In the first, implementation was very rigid and departures from prescription were severely punished. Mayors would receive strong letters from state authorities if they were not abiding by the contract; states would receive notes from the Ministry, asking them to take specific actions to correct any disruptions in the system as planned. Monitors would have to keep detailed records of their activities and present accurate reports. Reactions, complaints, disagreements, local adaptations, and even small innovations were very hard to get through.

Modifications and changes were adopted only after much discussion in regional meetings. Sometimes, they were implemented without knowledge of or consent from central authorities, but this was a risk that few monitors were willing to run. From CETEB’s standpoint, the reason was very simple: the experiment had to be implemented as planned, as the commitment to the details was total. The idea was that modifications could be implemented only after the pilot project, and until then orders were orders.

The new external realities already commented on forced the Ministry and CETEB to adopt a new strategy of decentralisation without being prepared for it. Moreover, an intended evaluation was never quite implemented, for two main reasons: first, because evaluation is a rare art, not commonly used in Brazil, and it is not surprising that the Ministry or the states have never seriously concerned themselves about it; and second, because the data base on which the planned evaluation should proceed has never been placed under operational conditions, except for peripheral matters.
Thus, one can see two models for organisational learning and technology transfer. Under the centralised phase, the system was prepared to receive only negative feedback, that is, information about deviations. Once notified, actions were taken to reduce the disruptions. Local adaptations and innovations could not be processed. Transfer of experiences between states was limited to exemplary cases of strictly following the rules. All ‘right’ changes had to be implemented underground, at some risk.

In the current decentralised phase, the centre is assuming other tasks, and its main function, besides producing materials, is to facilitate the exchange of experiences from one state to another. CETEB is acting mainly as a clearing-house which uses training and technical assistance as its main strategies to implement innovations. States are also free to design their own innovative strategies as well as to copy from others.

The mismanagement of information systems

Sophisticated management information systems are good instruments for mismanagement and Logos II is a case in point. The overall evaluation and information-processing framework set up for the project by the Ministry to monitor Logos II is formidable. It requires the project to co-ordinate and fill dozens of reports every month on every single aspect of the project’s operation—an impossible task. Organisational schizophrenia and incompetence were instrumental in allowing reality to play its role.

Locally, monitors devised their own control mechanisms in order to cope with their daily needs; the other reports were filled to the extent possible, with no major concern for accuracy; states acted on instincts, insights, common sense, and first-hand knowledge. They did play the game, they ran after the data, they filled in their own reports, but daily management and strategic decisions were based on simpler data bases. Even CETEB has never replaced first-hand knowledge and supervision with written reports. A preliminary evaluation of Logos II undertaken by Oliveira and Orivel in 1980 revealed and confirmed the absolute irrelevance of the gigantic mass of data which was accumulated for nothing, at a very high cost. The situation did not change, but data continued to be accumulated, until decentralisation came in.

For all practical matters, the project was generally well informed, including on cost matters. However, a systematic information system never developed.

In-service or on the job?

In-service training means that teachers study without leaving their own duties. Logos II attempts to make the curriculum and practical activities as useful as possible. However, the project was neither conceived nor implemented within the context of their regular activities. In fact, this was a federal project
implemented under state supervision in the villages. The villages did agree and participate, but none was able fully to integrate the project. Under this situation, practical problems arose. Curricula were not always relevant, both in terms of content as well as in terms of methodologies and techniques suggested. Lack of realism was the major criticism from the teachers in rural areas.

In some cases, there were conflicts of orientation. One instance is the case of literacy methods. Teachers, in many villages, were instructed to follow a given method. Logos II taught them three methods. Most teachers thought that a new method could be better for their pupils, but they could not use them without raising strong arguments from their supervisors. In the cases where supervision was absent or inoperative, the teachers managed to introduce new methods.

A third type of integration is at the practical level. Teachers are supposed to come to the village from time to time in order to sort out any personal problems, get their salaries, obtain materials or lunch for the students, meet with supervisors or local authorities at the municipality, receive orientation for health campaigns, and so on. In many cases the activities related to Logos II were not related to those other responsibilities, and teachers had to come on specific days just to meet such obligations, instead of doing several things at once, and in the same direction.

This type of problem can be overcome only to the extent that better integration is intentionally sought and carefully managed. In most cases, however, teacher training, even in-service training, remains as a separate activity. It is thus not surprising that so many teachers leave the educational system once they receive a better education.

There has been no systematic data collected about the turnover of teachers and Logos II-trained teachers out of the educational system. Typical turnover rates exceed 25 per cent a year. Traditionally the teachers who leave the system are the best-trained ones, and it is not surprising that Logos II would produce better-qualified teachers who would seek employment in higher-status levels of the educational system—such as secondary schools, educational administration, or as college students—or in the regular job market. Only a surplus of trained teachers would be able to circumvent such a structural characteristic of the labour force under a reasonably competitive market. A few attempts have been made by local mayors to set up a career plan for Logos II graduates, but those remain partial solutions with limited application.

SUMMARY AND CONCLUSIONS

Logos II seems to be a valid effort to use distance education as an instrument for training teachers in remote areas. It is certainly also adequate for better-equipped regions. However, critics could quickly raise several doubts about the project’s conception, process and results.
From a structural point of view, the project can be seen as reinforcing inequality: regular schools for the teachers in the best cities, and distance education for the rural areas. Moreover, as most of the teachers leave the system upon graduation, Logos II can be seen as a big failure, if the intended objectives are taken seriously. From a pedagogical viewpoint the project is vulnerable on many counts: provisions for entry requirements and remedial studies are very deficient and responsible for a significant proportion of dropouts; curricula are not always relevant, adequate or interesting. Teaching English in such areas—which is formally required by the state curricula—seems a total waste of time, energy and resources, and it is never well-learned. The quality of materials could be significantly improved, given that unit costs of a large-scale project could easily justify the recruitment of excellent personnel for this kind of activity. The pedagogical approach of Logos II is also a matter of criticism: too many behavioural objectives, too much guidance, excessive reliance on a single source of information, and so on. Some of these criticisms cannot be answered; others can be useful to improve the project or redirect it.

On the positive side, there are many lessons which might be useful for other similar undertakings. First, results are not poor, and they can be dramatically improved within the presented models even with small changes. Management seems to be the strongest point. Different from many other governmental attempts, Logos II was professionally managed. CETEB was not only professional, but also fairly competent. Overhead costs are minimal, both at the central and at the state levels. The impact of light-handed management is not only on costs; the periphery becomes more important, more active, and more responsible if the centre leaves room for local activities and initiatives.

Other specific lessons from Logos II have already been commented upon, such as the modularisation format, the social control of rhythm, the socialisation activities designed to overcome the feeling of loneliness, and the management of the student’s motivation. This seems to be a rare case of a reasonable combination of centralised planning with decentralised implementation, and in which technological constraints (tests, modules, and so on) can be used to give individuals more freedom to learn and to manage learning.

Domestically, Logos II also offers an important contribution: monitors become active in promoting non-formal education activities in their villages. They also contribute to the exploration in the field of the potential of distance learning, self-study, and many other innovations associated with teacher training. There are preliminary indications that regular schools are already benefiting directly and indirectly from this interaction.

As for the children in the local schools, there is not much hope under present circumstances. If one takes a more realistic view, Logos II is perhaps contributing to a slight improvement in the fate of those condemned to be taught by the rural teachers who lack so many alternatives that they are not able even
to improve their own lot and look for a better job. In the long run, as previously stated, projects like Logos II can saturate the market and may contribute to improving the general quality of education in the rural areas.

NOTES

2. General administrative costs. In fact, according to CETEB officials, the real costs are much above the amounts transferred by MEC.
3. About US $0.2.

REFERENCES


APPENDIX 4A

Table 4A.1 Distribution of instructional modules

<table>
<thead>
<tr>
<th>General Studies</th>
<th>No. of modules</th>
<th>Educational Studies</th>
<th>No. of modules</th>
</tr>
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<tbody>
<tr>
<td>Introductory modules</td>
<td>7</td>
<td>History of Education</td>
<td>6</td>
</tr>
<tr>
<td>Study Techniques</td>
<td>10</td>
<td>Didactics</td>
<td>8</td>
</tr>
<tr>
<td>Language</td>
<td>20</td>
<td>Educational Sociology</td>
<td>6</td>
</tr>
<tr>
<td>Social Studies</td>
<td>4</td>
<td>Educational Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Civics</td>
<td>4</td>
<td>School Legislation</td>
<td>6</td>
</tr>
<tr>
<td>Sciences</td>
<td>13</td>
<td>Supervision</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>15</td>
<td>Language Teaching</td>
<td>8</td>
</tr>
<tr>
<td>Literature</td>
<td>8</td>
<td>Mathematics Teaching</td>
<td>8</td>
</tr>
<tr>
<td>History</td>
<td>8</td>
<td>Social Studies Teaching</td>
<td>8</td>
</tr>
<tr>
<td>Arts</td>
<td>8</td>
<td>Science Teaching</td>
<td>8</td>
</tr>
<tr>
<td>Geography</td>
<td>8</td>
<td>Physical Education</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>6</td>
<td>Teaching</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
<td>Arts Teaching</td>
<td>8</td>
</tr>
<tr>
<td>English</td>
<td>6</td>
<td>Recreational Activities</td>
<td>6</td>
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<tr>
<td>Sub-total</td>
<td>120</td>
<td>Sub-total</td>
<td>83</td>
</tr>
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TOTAL: 205 modules
Table 4A.2 Logistic regression of success in Logos II

<table>
<thead>
<tr>
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<th>Coefficient</th>
<th>Level of statistical significance</th>
<th>Degree of significance</th>
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<tbody>
<tr>
<td>Years of school above 4 (reference: 4 and less)</td>
<td>0.0308807</td>
<td>0.0406</td>
<td>**</td>
</tr>
<tr>
<td>Teaching experience: 4 to 6 (ref: less than 4)</td>
<td>0.061172</td>
<td>0.8420</td>
<td></td>
</tr>
<tr>
<td>Teaching experience: +6 (ref: less than 4)</td>
<td>0.0442438</td>
<td>0.0625</td>
<td>*</td>
</tr>
<tr>
<td>Salary (ref: &lt;500)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 500 to 1,000</td>
<td>0.476112</td>
<td>0.0180</td>
<td>**</td>
</tr>
<tr>
<td>- 1,001 to 1,500</td>
<td>0.836826</td>
<td>0.0334</td>
<td>**</td>
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<tr>
<td>- 1,501 to 2,000</td>
<td>0.392601</td>
<td>0.4348</td>
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<td>- &gt;2,000</td>
<td>0.443714</td>
<td>0.2355</td>
<td></td>
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<tr>
<td>Sex monitor (ref: male)</td>
<td>9.64247</td>
<td>0.8911</td>
<td></td>
</tr>
<tr>
<td>Teaching experience of monitor (ref: 0-1 year)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 2 to 3 years</td>
<td>2.66158</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 4 years</td>
<td>1.54575</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 5 to 7 years</td>
<td>2.711196</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 8 years</td>
<td>3.76885</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 9 years</td>
<td>1.62423</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 10 years</td>
<td>1.186911</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 11 or 12 years</td>
<td>2.45868</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 13 years</td>
<td>0.970884</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>- 14 years and above</td>
<td>1.37931</td>
<td>0.0001</td>
<td>***</td>
</tr>
<tr>
<td>Age of candidates (ref: &lt;21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 21 and 22 years</td>
<td>0.781239</td>
<td>0.0032</td>
<td>**</td>
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<tr>
<td>- 23 and 24 years</td>
<td>0.382</td>
<td>0.1642</td>
<td></td>
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<tr>
<td>- 25 and 26 years</td>
<td>0.506963</td>
<td>0.0896</td>
<td>*</td>
</tr>
<tr>
<td>- 27 to 29 years</td>
<td>0.462688</td>
<td>0.0872</td>
<td>*</td>
</tr>
<tr>
<td>- 30 to 33 years</td>
<td>0.24481</td>
<td>0.3844</td>
<td></td>
</tr>
<tr>
<td>- 34 to 41 years</td>
<td>0.521375</td>
<td>0.0477</td>
<td>**</td>
</tr>
<tr>
<td>- &gt;41 years</td>
<td>0.481584</td>
<td>0.0967</td>
<td>*</td>
</tr>
<tr>
<td>Piaui State (ref: Rio)</td>
<td>1.32518</td>
<td>0.0005</td>
<td>***</td>
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<tr>
<td>Intercept</td>
<td>11.5642</td>
<td>0.8695</td>
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Degree of significance:  *<0.10  
**<0.05  
***<0.001
This chapter reports on new efforts to assess the costs and effectiveness of teacher education at a distance in two developing countries in Asia: Sri Lanka and Indonesia. These efforts were meant to provide policy-makers with fresh insights from research designed to overcome many of the weaknesses of the past. Before this research is described we will focus briefly on the historical and educational context of the distance-education programmes in the two countries involved.

SRI LANKA

Sri Lanka has distinguished itself as the only major country in the South Asian region (which includes Bangladesh, India, Nepal, Pakistan and Sri Lanka) to achieve a high rate of literacy and enrolment in basic education. In the mid-1980s about 85 per cent of the school-age population was enrolled in basic education, and the literacy rate was close to 80 per cent. This achievement should be seen in light of the fact that Sri Lanka is also one of the poorest countries in the world (GNP per capita was US $339 in 1984).

This impressive accomplishment is rooted in the government’s commitment to universal primary education, a commitment which was made shortly after gaining independence from the British in 1948. This strong national commitment to education is also supported by the religion of its early national leaders, Buddhism, which stresses the importance of cultivating the mind. The growth of access to education since independence, however, has not been
accompanied by a growth in educational quality. Only a small minority of Sri Lanka’s 10,000 schools—mostly the élite, private ones—are considered to provide high-quality education.

The extreme centralisation of educational management and the educational paradigms inherited from the colonial period produced an ‘overloaded’ basic-education system which was out of step with the rapid social and economic changes of the post-independence era. In addition, the system has been beset by problems of repetition, drop-out, and low student achievement, indicators of low quality that became the chief concern of Sri Lankan educational reformers as they entered the 1980s.

The government set up an educational reform committee which produced a White Paper in 1981 that called for measures to improve the quality of education on the island. Among them was a provision for the reform of teacher education. Problems in this area were clear: as recently as 1967 fewer than one-half (42 per cent) of the teachers had been trained. By 1979 that figure had improved to 61 per cent, but this still left 37,000 teachers who had received no institutional training. Moreover, there were problems of teacher absenteeism and desertion from the teaching profession.

Proposals for reforming teacher education included raising the qualifications for those entering teacher education, making changes in the teacher-education curriculum to correspond to changes in the elementary school curriculum, and introducing approaches to teacher training based on current research. Up to the early 1980s most teacher training for basic education was in-service training of non-graduate teachers during a two-year residence at one of the country’s 16 teachers’ colleges. These colleges were inadequate in numerical terms, if for no other reason, since they could only accept a total of around 2,000 candidates per year.

The reforms initiated under the White Paper gave birth to two new approaches to primary-school teacher training: pre-service training at the newly constituted colleges of education, starting in 1985; and in-service training through distance education, which was initiated in 1983 by the National Institute of Education with help from the Swedish International Development Authority (SIDA). The colleges of education were given the task of training well-qualified high-school graduates to become teachers. The distance-education programme was directed at helping the teachers’ colleges clear the backlog of untrained teachers currently working in schools around the country.

A closer examination of these three kinds of teacher-training institutions reveals their similarities and differences. The traditional teacher-training institutions, the teachers’ colleges, have been in existence since before independence. Their purpose is to improve the skills and pedagogical knowledge of experienced teachers. Candidates are expected to have either ‘O’ or ‘A’ level passes and a good teaching record. They are given residential training without charge (except for a modest ‘facilities’ fee) for two years, during which time they continue to draw their teacher’s salary. The programme
emphasises principles of primary education (42 per cent of the course content), professional foundation courses (23 per cent), and subject matter (16 per cent). Only ten per cent of the content is devoted to teaching practice. Instruction is through lectures, discussions, demonstrations, projects, microteaching and field trips. Originally there was a third year, a supervised internship at the trainee’s own school, but this was discontinued in 1988. At graduation, the trainees receive a trained teacher’s certificate, have good opportunities for advancement, and receive a salary increase.

The relatively recent colleges of education, seven in number as of 1988 and producing about 1,500 graduates a year, see their main task as moulding a complete and effective teacher with the knowledge, skills and attitudes that will be required of future leaders in education. The colleges select highly motivated high-school graduates (‘A’ level) and place them in a full-time residential programme for two years, where they have a heavy load of course work and extra-curricular activities, all of which are undertaken as a cohort. Courses in professional foundations, principles of primary education, and subject matter are about equally weighted. Course work on teaching practice takes up only about 11 per cent of the curriculum, but an internship in the third year, which consists mainly of supervised practice under faculty members, is taken seriously. Trainees receive a monthly allowance (much of which is recovered in the form of facilities fees). In exchange, once they graduate and are awarded their teaching credential, they are expected to teach for at least three years in difficult schools in poor or remote areas.

The distance-education programme was designed to allow teachers to earn their teaching certificate at their own pace while working. The programme admits experienced teachers with varying educational backgrounds (‘O’ level or ‘A’ level). Those in the programme may take from three to five years to finish. In contrast to distance-education programmes in other countries, it is not a correspondence programme. Instead, trainees make frequent trips to regional centres (there are about 30 on the island) where they pick up self-instructional materials and submit assignments to tutors, who evaluate their progress. During some visits to the centres, study circles and practical sessions are arranged, giving teachers the opportunity to practise teaching skills and reflect on what they are learning in relation to their everyday classroom experiences. During school vacations five-day ‘contact sessions’ are held (eight per course), which focus on a wide range of teacher competencies, and are based on feedback from the centres. Finally, group tutors from the regional centres periodically visit the teachers in their schools to determine the difficulties teachers are having in applying their new knowledge and skills.

Enrolment between 1984 (the first year of the programme) and 1988 (the year of the research) is shown in Table 5.1. The decrease in enrolment during years three and four is not a reflection of market saturation, since by 1988 there was still a backlog of at least 13,000 primary teachers who were eligible for the course, and an annual intake of new untrained teachers of about 4,000. It may, however, be a reflection of poor advertising. The course was advertised
In-service initial training of teachers through the government gazette as well as newspapers and radio. These media, however, are not widely available in remote areas where most of the untrained teachers live. (Those who are easily reached by such media are likely to have entered the course in the early years.) In 1988, low new student intake is also attributable to political instability in the country.

Lower than expected enrolments were not necessarily an unwelcome development. Recruitment in the first two years was over-ambitious, overloading staff and facilities. The lower enrolments in the second two years allowed the programme to diminish staff load and to concentrate on quality improvement.

The number of graduates from the programme during the period 1984–88 was about 5,000. The total number of students enrolled as of 1988 was about 4,500. Course efficiency (that is, the proportion of students graduating within the prescribed three-year period) was 85 per cent.

Thus from 1983 to 1988 about 5,000 primary-school teachers graduated from the distance-education programme. About one-third of them had been officially designated as part of the untrained backlog (Dock et al., 1988). It has been difficult to reduce the backlog quickly, however, since new untrained teachers are still appointed at the rate of at least 4,000 per year. According to the above authors:

The implications of these figures for the future orientation of the distance education teacher training programme are quite clear: the need for the distance training for non-graduate teachers will continue for a considerable time. In addition to the backlog of untrained non-graduates from previous years, the current large-scale recruitment of untrained non-graduates adds substantially to the pool from which the distance programme draws its students.

(Dock et al., 1988, p. 66)

Policy issues

In the mid-1980s education authorities in Sri Lanka decided to evaluate the effectiveness of the educational reforms initiated earlier in the decade.

Table 5.1 Enrolment in the distance-education programme, Sri Lanka 1984–88

<table>
<thead>
<tr>
<th>Year</th>
<th>Sinhala</th>
<th>Tamil</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>3,007</td>
<td>—</td>
<td>3,007</td>
</tr>
<tr>
<td>1985</td>
<td>3,183</td>
<td>—</td>
<td>3,183</td>
</tr>
<tr>
<td>1986-87</td>
<td>1,907</td>
<td>436</td>
<td>2,343</td>
</tr>
<tr>
<td>1988</td>
<td>1,253*</td>
<td>350*</td>
<td>1,603*</td>
</tr>
</tbody>
</table>

Source: Dock et al., 1988
Note a. Anticipated but not confirmed intakes.
Implementing the reforms had required vast resources; the continuation of new alternatives depended on their cost-effectiveness in improving the quality of education on the island. In addition, there was a concern about the lack of coherence in the national approach to teacher education, since the various programmes had been managed and evaluated separately. Furthermore, there was a need to understand whether the different approaches, all based on foreign models, were suitable in the Sri Lankan environment. Educational decision-makers thought that research would help them develop coherent policies and a truly national system of teacher education.

The demand for such research coincided with research funding from USAID under the BRIDGES Project. BRIDGES in Sri Lanka was developed as a series of collaborative research projects between the National Institute of Education and a team of US-based researchers organised by the Harvard University Institute for International Development. One of these projects was a study of the effectiveness and costs of teacher education in Sri Lanka (see Tato et al., 1991).

INDONESIA

During the past two decades Indonesia has been extraordinarily successful in increasing access to basic education, in large part because of its oil boom in the mid-1970s. Whereas a realistic target for primary-school enrolment in the early 1970s was 55 per cent, by the late 1980s (1988–89) the country had attained near universal primary education (95–98 per cent coverage). At the beginning of that expansion qualified teachers were scarce and the nation’s capacity to produce them limited. By the late 1980s there was a general surplus both of qualified primary-school teachers and of the capacity to produce them (except in rapidly growing and remote areas of the country). In the current Five Year Plan (1989–94) improving the quality of teachers is thus given more emphasis than increasing the number of teachers.

Having attained universal primary education, the Indonesian government has recently decreed that the basic cycle of education will include lower-secondary education. This has created new pressures for expansion on a sub-sector that has already expanded rapidly. In 1986 lower-secondary schools (SMPs) were enrolling about 45 per cent of primary-school graduates. During the current Five Year Plan this figure is expected to climb to 65 per cent. Because of the rapid expansion going on at this level, teacher shortages have been acute, especially in mathematics, science and language (Indonesian and English). For example, during the mid-1980s the teacher-training colleges were graduating around 13,000 secondary-school teachers a year, but the projected demand in 1986–87 was almost four times this number (Improved Efficiency of Educational Systems, 1987). In addition, the majority of the practising teachers are under-qualified. The current minimum qualification for SMP teachers is the Diploma II (D-II), consisting of two years of post-
secondary-school training. As of 1987–88 the proportion of active SMP teachers (public and private) who had the D-II qualifications or above was only about 40 per cent (Office of Educational and Cultural Research and Development, 1989). This meant that about 237,000 SMP teachers had qualifications below the D-II level.

In 1985 the newly established Open University of Indonesia (UT) began to provide upgrading at the D-II level to practising SMP teachers through distance education. This upgrading was not mandatory, but during its first few years fees were waived to encourage teachers to become involved. Enrolment has been open to everyone who has their D-I diploma and has taught for at least two years. Learning has been basically through self-instruction. Tutorials are voluntary and are provided, two per semester, at one of 32 regional centres around the country to groups of students on request. In addition to the official tutorials, some trainees have organised their own study groups, but since this is unofficial the exact incidence of this is unknown. Audiocassettes and videocassettes are provided as additional resources in a number of courses, and television and radio programmes cover some of the basic university courses.

The Diploma provided by UT requires a total of 40 credit hours, equivalent to one year of full-time study, with 80 per cent of the credits directly related to one’s subject matter speciality (mathematics, national language, English, biology, chemistry, and so on). The other 20 per cent are distributed across general theory and methods courses. There is no practice teaching in the programme since the teachers’ own experience is assumed to have provided sufficient training in practical skills. Trainees study part-time while they continue to work as teachers; they generally take between two and four years to complete the programme.

The curriculum for each of the D-II courses for lower-secondary-school teachers given by the Open University has four components: general basic courses (8–10 per cent), covering the Indonesian language, moral and civic education, religion; subject-matter courses (70–75 per cent), such as mathematics, language, biology, social studies; general-education courses (eight to ten per cent), including educational and developmental psychology, principles of education, educational administration, innovation and development in curriculum; courses on learning and teaching processes (ten to 12 per cent), specialised courses on teaching particular subject matter.

During the first two years of the course, tutorials were provided for all courses by a tutor (usually a university lecturer) appointed by the head of a regional distance-education centre (located at one of the 32 state universities or teacher-training institutes throughout the country). For each course, two to three tutorial sessions were held per semester, the ideal length of time for covering the course. The tutorials were expected to last three to four hours and review main points of the course and students’ problems and questions. There was only one tutorial group course at a regional centre; therefore tutorial groups often had more than 100 students. During the first two years attendance
at tutorials, which was not obligatory, fell drastically. When it went below ten per cent, a decision was made to hold tutorials only when they were requested by a significant number of students. Formal tutorials for the D-II programme later only operated in a few of the regional centres. However, research revealed that nearly 50 per cent of the students attended small study groups or tutorials which they organised themselves.

Because of cuts in Ministry of Education funds (related to oil price declines) the government has had to suspend financial support to students in the programme for the past two to three years. Thus, most students in the past two cohorts have had to pay full tuition and fees, a condition that has negatively influenced new enrolments over the past two years. During 1989 a new civil service law gave those who had the D-II diploma the possibility of an accelerated promotion. With this new incentive it is expected that enrolments will increase again.

A D-II programme is also available at conventional teacher-training institutes or faculties of education at universities. As a pre-service programme it is open to high-school graduates and operates in the conventional campus/lecture mode. The programme takes two years to complete and carries 80 credit hours, 69 per cent of which are in subject-specific courses, 19 per cent in teaching methods (including three units of practice teaching) and the rest in general theory. This course is highly subsidised, but the students do pay modest fees and pay for their own books, materials and accommodation.

Policy issues

The Indonesian government is simultaneously creating new cohorts of teachers trained at the D-II level and upgrading current teachers to that level. The first programme is highly subsidised and expects trainees to gain skills before becoming teachers; the second requires teachers to pay for a high proportion of the costs and assumes that actual on-the-job experience will provide the necessary teaching skills. These two programmes could be considered alternative paths to the same end; their relative importance in terms of government funding could be determined on the basis of their relative cost-effectiveness. This is in line with recent recommendations from a joint education sector review conducted by the Ministry of Education and USAID (Improved Efficiency of Educational Systems, 1987). Its section on teacher education concludes with the following:

The policy options presented within the teacher education subsector revolve around two themes: (a) improving the quality of teacher training at all levels, and (b) increasing the number of trained teachers at the secondary and tertiary levels. Each of these options should be judged on the basis of information as to their cost effectiveness. This is impossible without continuously available evaluative information on
In-service initial training of teachers

program implementation costs and overall program impacts. An underlying principle, therefore, in each of the policy options considered is the inclusion of a strong evaluative component, both formative and summative.

When the BRIDGES research programme was developed in Indonesia, ministry officials made it their highest priority to assess the costs, effectiveness and benefits of current efforts to train teachers through distance education. The Indonesian Open Learning University took the lead role in a consortium of Indonesian institutions and the Institute for International Research, Inc., of Arlington, Virginia headed the US-based effort. (Detailed results of this collaboration are found in Nielsen and Djalil, 1989 and 1990).

OBJECTIVES OF THE STUDY

The study was carried out in order to demonstrate, compare and contrast the cost-effectiveness of distance-education programmes for training teachers in Indonesia and Sri Lanka. Since distance education has been presented as a low-cost alternative to conventional campus-based training, we sought hard evidence of this in the two countries. We also wanted to determine how effective this innovative approach had been in improving teachers’ subject knowledge, teaching skills and professional attitudes. Initially, we also planned to assess the relationship between the teachers’ training experiences and student learning gains. However, since this was ultimately only possible in Sri Lanka, it is not included in the current study.

Our perspective was comparative both within and between countries. Within countries, we wanted to compare distance-education programme costs and effects with those of more conventional in-service training programmes (possible in Sri Lanka, not in Indonesia), and with those of pre-service programmes geared towards comparable levels of training and certification (possible in both countries). The first kind of comparison would be useful in determining whether distance education can take on in-service training roles that are traditionally assigned to teachers’ colleges; the second to determine whether teacher competence and professionalism can be acquired as cost-effectively on-the-job as they can through pre-service professional training programmes. Comparisons between countries were made to determine whether the results found in one national context were also found in the other, and to explore whether national-level programme design features influenced the relative cost-effectiveness of the distance-education programmes.

EXPLICATION OF CONCEPTS: TRAINING COSTS AND PROGRAMME EFFECTIVENESS

In order to make the two studies comparable, the research teams in the two countries tried to explicate the main research concepts in similar ways. This
does not mean that the variables and their measurement were precisely the same: differences in educational systems, staff training and research conditions all meant that rather different approaches were taken to variable construction and data collection. This was of little concern to us as long as the basic concepts were the same, since our intention was to compare patterns of findings and relative costs/effects, and not actual test scores. We considered the study’s two main concerns to be training costs and programme effectiveness.

**Training costs**

Our intent was to capture the real costs of training in the two countries, using the taxonomy suggested by Tilak (1985), which begins by distinguishing between institutional and private costs. For institutional costs, we included both recurrent costs (staff salaries and benefits, training materials, utilities, maintenance of facilities, student health and recreational services, staff training) and capital costs (annual costs for buildings, equipment and vehicles). We counted costs borne both by the training institutions themselves and by other institutions, such as radio stations or donor agencies.

Private costs included both direct costs (tuition and other fees, room and board, books and supplies, transportation) and indirect costs (earnings foregone as a result of taking the course). Foregone earnings were of two kinds: for those who were already in the teaching force, they were estimations of the earnings actually sacrificed each month; for those who had not entered the workforce yet (but would have gone to work if they had not entered teacher training), they were estimations of the amount the trainees could be earning.

For analytical purposes, we combined the two kinds of costs into a measure of total costs per academic year and per course and then figured unit costs by dividing the number of participants in the courses. For the distance-education programmes we transformed the cost of part-time study into that for a full-time equivalent. Thus the unit cost figures that were used were total cost per trainee per year (or equivalent) and total cost per trainee per cycle (the entire course).

**Programme effectiveness**

As mentioned above, we considered programme effectiveness in terms of teachers’ subject knowledge, teaching skills and professional attitudes. These three dimensions of effectiveness are further explicated as follows.

*Subject knowledge*

Since every primary-school curriculum emphasises language and mathematics skills, we decided to test the teachers on their knowledge in these two subjects.
There was a difference between the two countries in choice of languages. In Indonesia we chose the national language (Bahasa Indonesia), a mother tongue for very few; in Sri Lanka we chose one of the country’s two principal mother tongues, Sinhala or Tamil. In both countries mastery was defined as knowing what the pupils were expected to know in the two subject areas, and acquiring subject-specific background knowledge from the teacher-training programmes. Thus, test items were at two levels—those drawn from the school curriculum and those drawn from the training-college curriculum.

**Teaching skills**

The two countries defined effective teaching practice in their own ways, based on official statements (Indonesia) or expert opinion (Sri Lanka). However, in both countries teaching skills were considered to have both a theoretical and a practical aspect. In Sri Lanka this meant understanding how children learn specific subjects (theoretical) and the subject-specific pedagogical skills related to this understanding (practical). In Indonesia it meant knowing the appropriate teacher behaviour in particular learning-teaching situations (theoretical), and being able to put them into practice in a classroom setting (practical). How these concepts operated in the two countries will be covered in more detail in the separate ‘Data collection’ sections under each.

**Professional attitudes**

One of the main objectives of teacher education in both countries is shaping professional attitudes and commitments. The domains considered important were attitudes about teaching in general, about the teaching profession, about students and about the community. In Indonesia, where we were dealing with subject-matter specialists, there was an additional section on attitudes towards the field of study. Measurement was through the use of validated attitude scales, in which the respondents were prompted to agree or disagree with statements of value or opinion.

**THE OVERALL RESEARCH DESIGN**

Since the main objective of this research was to compare the cost-effectiveness of distance education with that of more conventional approaches, we paid careful attention to selecting appropriate comparison groups in both countries. In Sri Lanka, the pre-service college of education and the in-service teachers’ college were both comparable to the distance-education programme in level and objectives, and were thus chosen as comparison groups. In Indonesia, the same Diploma-II course is offered both on conventional campuses (pre-
service) and through distance education (in-service). The two programmes are essentially equivalent in terms of their offerings, except that the pre-service course puts more emphasis on pedagogy, based on the assumption that practising teachers have already acquired basic teaching skills. There are also differences in the length of the two programmes. The campus-based programme lasts two full years; the distance-education programme lasts the equivalent of one full year (given the fact that trainees have been through a previous in-service programme). This did not hamper our efforts to compare costs, since we first computed cost per credit hour, and then converted this into cost per year and cost per cycle. For comparison’s sake, the distance-education costs were presented in terms of a ‘full-time equivalent’. With respect to the effectiveness assessment, it was necessary to keep in mind that distance-education learners covered the equivalent of a second year of the D-II programme. This will need to be taken into account in interpreting learning gains.

Comparison across countries was also on our agenda. This was not as straightforward. Teacher education at a distance in Sri Lanka was for both primary and secondary teachers, but policy-makers there wanted the research to focus on the primary cycle. In Indonesia, distance-education programmes were available for lower-secondary-school teachers but not primary teachers. Since Indonesians have recently combined primary and lower-secondary into a single basic education cycle, we can say that in both countries the focus is on basic education. However, in Indonesia the teachers in our study were trained as subject-matter specialists, whereas in Sri Lanka they are trained as class teachers (expected to cover all subjects). Since what we decided to compare across countries were themselves comparisons (between distance-education and conventional programmes) and not teachers’ costs or effectiveness scores, we do not feel that this limitation poses any real threat to the validity of this undertaking. In interpreting the results we do keep in mind that mastery in mathematics and language is part of a larger subject-matter package for primary-school teachers, whereas for secondary-school teachers it is a single speciality. That does not prevent us from drawing conclusions about the relative effectiveness of distance education in preparing teachers of both countries in these subject matters.

The most appropriate way to compare the alternative approaches on the effectiveness measures within each country would have been to follow trainees through an entire cycle, using a longitudinal design. This would have allowed for pre-test and post-test measures from the same trainees and the calculation of change scores. In our case, there was only one year for data collection, not enough time for a longitudinal study of programmes lasting two to four years. We thus opted for a cross-sectional design. This meant drawing samples of teacher trainees both from among those who had just begun their programmes (entry-level trainees) and from among those who had just completed it (exit-level trainees). Assuming that the two groups are essentially from the same population (we tested and adjusted for this), we treated the difference between the two groups on our measures as proxies for change scores.
With these general design features in mind, we will now describe the conduct and results of the research in the two countries. After that we will draw the findings from the two countries together to demonstrate and explain similarities and differences.

**THE COST-EFFECTIVENESS STUDY IN SRI LANKA**

We examined two institutions from each kind of programme in Sri Lanka, one from the coastal area near Colombo, and one from the hilly regions in the central interior. A quota sample of 50 students was to be drawn from the entry-level and exit-level students in each institution, yielding a sampling frame as shown in Table 5.2.

Table 5.3 demonstrates the extent to which our target sample was achieved. Political instability at the time of data collection kept many trainees at home, thus most cells were somewhat below our quota of 100, and one cell, that for the distance-education entry-level group, was seriously below. Just before data collection from this group, changes occurred in programme management that delayed intake that year. By the time intake began, political instability was at its height. The 24 teachers who enrolled at our sample distance-education centres that year and who came for testing represent a much smaller group than we had hoped for. Nevertheless, they were not significantly different from their exit-level comparison group in background characteristics. Thus, we decided to proceed with the analysis despite the small numbers. Self-selection may still have been a factor, since those who persevered in the face of difficulty were perhaps more highly motivated and thus prone to higher achievement than those who did not. Such a bias might inflate the test scores of their group, making the differences between their test scores and those of the exit-level group smaller than they would otherwise be. Thus, any selectivity bias in the findings for this programme would be in the direction of understating the differences that actually exist between the groups.
Sri Lanka and Indonesia

Data collection

Institutional cost data were collected by interviewing college presidents and their financial clerks. In the case of distance education, interviews were conducted with administrators at the national centre as well as senior tutors at the regional centres. Since the colleges did not keep inventories of their equipment, we elicited the co-operation of local administrators in making a physical inventory, and estimating the replacement value of each piece of equipment. Student costs were gathered from the exit-level trainees via questionnaire. They were asked to list their actual expenses and foregone income during the years of their training.

Effectiveness measures were all designed as paper and pencil tests. Trainees took two tests of subject-matter mastery, one for mother tongue and one for mathematics. Each had multiple-choice and open-ended items covering content from both the primary-school and the teacher-education curricula, as mentioned above. They also took two tests of teaching skills, related to learning and teaching the two subject matters. The tests presented situations as they occur in the classroom in the teaching of specific subject matter. Respondents were expected to use their pedagogical knowledge in describing how to deal with the situations. The dimensions measured included the teachers’ arrangement of the instructional environment, the type of instruction provided (teacher- versus student-centred), attention to the curriculum, use of instructional materials, and level of interaction with the pupils. The observation of teacher classroom behaviour was also a part of the research in Sri Lanka, but only during a later study (not reported on here) of the teachers once they had been teaching for a year after the completion of their programmes (see Tatto et al., 1991).

Data analysis

The unit-cost figures were calculated for each institution and then pooled according to type (colleges of education, teachers’ colleges and distance education). Costs were broken down by type (capital versus recurrent) as well as source of funds (institution versus trainee). Care was taken to treat tuition

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**Table 5.3 Achieved sample, Sri Lanka**

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Entry</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of education</td>
<td>100</td>
<td>86</td>
</tr>
<tr>
<td>Teachers’ college</td>
<td>92</td>
<td>78</td>
</tr>
<tr>
<td>Distance education</td>
<td>24</td>
<td>73</td>
</tr>
</tbody>
</table>

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**Sri Lanka and Indonesia**

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and fees on the one hand, and student stipends or allowances on the other, as transfer payments so they would not be double counted.

The effectiveness analysis involved a comparison of mean scores and standard deviations for entry- and exit-level groups, pooled across the two institutions of the same type. To account for possible differences in background and experience, controls were made for age, gender, educational level before entering the programme, and previous teaching experience. Although there were no direct controls for learning ability, the educational level variable did function as a control for gross differences in ability level. In addition, there was very little drop-out from the courses (colleges of education one per cent; teachers’ colleges five per cent; and distance education 10–15 per cent), so the selectivity effect was not a concern. Even in the case of distance education, drop-out seemed more related to a variety of personal problems than to academic performance.

For the cost-effectiveness analysis, we compared cost per student per cycle with a single effectiveness index, which was formed by standard scoring and combining all effectiveness indicators except those for attitudes, which tended to move in a direction contrary to the others. The effectiveness measure that entered the cost-effectiveness ratio was the difference between entry level and exit level on the composite index.

FINDINGS: SRI LANKA

Programme costs

The main results of our costs analysis are presented in Table 5.4 (see also the Appendix to this chapter). When the overall costs are considered, it is clear that the training at the distance-education centres is considerably less expensive than that at the more conventional colleges, costing about one-sixth as much as that at the colleges of education (pre-service) and one-third as much as that at the teachers’ colleges (conventional in-service).

When the source of funds is considered, it is clear that trainees in distance education bear a much higher share of the total costs. The trainees in the colleges of education cover only 16 per cent of their costs, those in the distance-education programmes assume a full two-thirds (67 per cent). Trainees in the teachers’ colleges bear no cost burden at all; in fact, they leave the programme with a net gain because they receive their full salaries during training and sacrifice very little in terms of programme fees and foregone income. As regards the relatively high cost burden for the distance-education trainees, two-thirds could be considered very heavy, except that the programme’s total costs are so low that the $167 they pay or forego per year is actually lower than trainees’ costs in the colleges of education.

About 70 per cent of the private costs for those in the distance-education programme are foregone income. This may come as a surprise to those who
have asserted that distance education (because it involves part-time study by those still in the workforce) is free of opportunity costs. This may be true for the courses taken as a hobby, but in this programme of teacher certification the workload is heavy and prolonged; the average trainee covers a two-year full-time course in just over three years, working part-time. Obviously, such a load leaves little time for the kind of part-time work that is so common (some would say essential) for teachers in this part of the world. One compensation for bearing this kind of burden is the fact that distance-education course completers are allowed to continue teaching in their current locations, whereas those who are trained at residential colleges are often posted (or transferred in the case of in-service trainees) to difficult areas.

When only the cost to sponsor is considered, as it would be if the government wanted to know how much it needed to invest, the distance-education programme appears extraordinarily economical: government costs for distance education are less than one-tenth of those for the colleges of education and almost one-eighth of those for the teachers’ colleges. Currently a high proportion of the distance-education programme institutional costs are being borne by a donor agency, SIDA. Once it withdraws, as it eventually must, the government could sustain the programme out of its own funds fairly easily. In fact, it could carry eight trainees in the distance-education programme for the same cost as one trainee at the teachers’ colleges.

The mix between capital and recurrent costs is illustrated in Figure 5.1. It is remarkable how different the programmes are in terms of the amount devoted to capital costs. In the colleges of education, which are residential and élitist, 40 per cent of costs are capital costs. These costs cover not only lecture halls and dormitories, but also administrative buildings and offices, electronic equipment (computers and audiovisual hardware), and recreational/sports facilities and equipment. This is in keeping with the goals of these institutions to provide an intensive learning and socialisation experience for future leaders in primary education. In the teachers’ colleges capital costs are only 29 per cent of the total. Campuses in this programme provide very basic lecture and living facilities, and very little else. They may have a typewriter or two, a television and mimeograph machine, but very little other equipment.

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Table 5.4 Total costs per student per year by type of institution and source of funds, Sri Lanka, (Currency: 1988 US dollars)

<table>
<thead>
<tr>
<th>Source of funds</th>
<th>College of education</th>
<th>Teachers’ college</th>
<th>Distance education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>1,401</td>
<td>878</td>
<td>251</td>
</tr>
<tr>
<td>To sponsor</td>
<td>982</td>
<td>702</td>
<td>88</td>
</tr>
<tr>
<td>To trainees</td>
<td>226</td>
<td>&lt;285&gt;</td>
<td>167</td>
</tr>
</tbody>
</table>

Note: Costs to sponsor and to trainees do not add to overall costs because of the net effect of transfer payments.
Finally, capital costs in the distance-education programme are minimal (nine per cent). Like most distance-education programmes in which self-instruction is the norm, this programme has modest space demands. All it uses are a few office buildings in Colombo, where it produces instructional materials, co-ordinates programmes and keeps records, and some rented buildings in the regions it uses on weekends and holidays for tutorials. Unlike most distance-education programmes, it spends very little on the production of media (television and radio programmes). It has instead decided to place heavy emphasis on tutorials and group work. In fact, its relatively heavy recurrent costs are devoted almost entirely to the provision of modules and the payment of tutors. The substitution of tutors for hi-tech educational media has kept the capital costs down, but since tutors are variable costs and production facilities are fixed, unit costs are unlikely to fall with any expansion of the programme.

Programme effectiveness

The study in Sri Lanka reveals consistently positive results for the distance-education programme on all effectiveness measures (see mean scores in Table 5.5 and the graphic presentation in Figure 5.2 using standard or Z-scores). On
the subject-matter tests, distance-education exit-level trainees had higher scores than entry-level trainees did in both mathematics and language. The difference was higher in the language scores. On the indicators of teaching skills, similar results were found: exit-level trainees outscored entry-level trainees in both mathematics and language, but with wider margins in language. Finally, a large positive difference in attitudes between exit and entry levels was observed.

When these results are compared with results from the other two programmes, the pattern is mixed. Compared with the teachers' college programmes, the distance-education programmes appeared more effective (in terms of difference between exit and entry) in four of the five areas measured: maths and language subject-matter mastery, maths skills and professional attitudes. Only in language skills does it appear to be slightly less effective. Compared to the college-of-education programmes, the distance-education programmes appeared more effective in only two of the five areas considered—language knowledge and professional attitudes. In maths knowledge and both maths and language skills the colleges of education appear to be more effective. In fact, the college-of-education programme is the most effective of the three in these areas, whereas the distance-education programme is the most effective in the area of language knowledge and professional attitudes.

These differences in effectiveness among the three kinds of programmes could be explained in terms of their various structural/organisational features. Clearly the colleges of education are the most elitist and also the most intense. Given the high ability and motivation of their students it is not surprising to find the colleges producing substantial knowledge gains. Also, given the fact that they had never studied pedagogy before, and then were exposed to some of the most up-to-date methods used anywhere (including simulation and field visits to schools and communities), it is not hard to understand why they show such great differences between entry and exit in teaching skills. What is surprising, however, is their poor showing on professional attitudes, given the fact that the programme considers socialisation as one of its most important goals. It may be that these élite trainees come into the programme already filled with idealism and able to discern the correct attitude responses. Their idealism may flag somewhat as they begin to understand the real world of a teacher and anticipate their internship year in difficult schools. Findings beyond the scope of this study show that their attitudes become significantly more negative during their initial teaching years. In any case, the current findings seem to show that there is a limit to what direct teaching and socialisation can do in shaping the professional attitudes of prospective young teachers.

In the case of distance education, it is apparent that the programme’s particular mode of integrating study with ongoing work in teaching has borne fruit. Increased knowledge may be explained by the constant interaction with, and feedback from, tutors, whereas the effectiveness in skills acquisition may
In-service initial training of teachers

be a reflection of the group work (practical sessions and the exchange of experience and know-how) and the feedback provided by tutors during school visits. The fact that the distance-education programme was more effective in improving both knowledge and teaching skills in language as compared to mathematics is not surprising given the fact that much distance-education learning is still self-instructional. Throughout the world self-instructional programmes are more effective at teaching verbal skills than quantitative skills. The positive effect of the distance-education programme on professional attitudes may be more a reflection of the professional support from peers and tutors and an increase in competence and job satisfaction than it is the result of explicit teaching and learning of appropriate attitudes. This point is buttressed by the findings of a follow-up study that once the course was finished and the graduates were back on their own again, attitude levels were found to be basically on a par with those of the entry-level group.\(^5\)

Figure 5.2 Standard scores on effectiveness measures, Sri Lanka. (See Figure 5.4 for key.)
The relatively weak programme effects of the teachers’ colleges could be a reflection of: (a) the fact that the programme mainly aspires to reinforce what the teachers already know and do in their classrooms, (b) a traditional curriculum which emphasises educational foundations (23 per cent of coursework) and ‘principles of primary education’ (41 per cent), and (c) the elimination of the internship year. In contrast to the other two programmes, both of which developed very close relationships between training and the real world of the classroom, school and community (colleges of education through field trips and community service, and distance education through on-the-job training), the teachers’ college programme was quite removed (both physically and in its substance) from the day-to-day concerns of students and teachers. Given that little changed in terms of their professional knowledge and skills, it is not surprising that their attitudes were also basically unaffected by their programme.

**Programme cost-effectiveness**

The value for money (Taylor, 1983) or efficiency (Windham, 1988) of the distance-education programmes, compared to that of the more conventional ones, is illustrated by the cost-effectiveness ratios found in Table 5.6. In this table we summarise the difference between the entry and exit groups on the

<table>
<thead>
<tr>
<th>Programme</th>
<th>Level</th>
<th>Maths knowledge</th>
<th>Language knowledge</th>
<th>Maths skills</th>
<th>Language skills</th>
<th>Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance education</td>
<td>Entry</td>
<td>35.2</td>
<td>44.83**</td>
<td>50.73</td>
<td>56.40***</td>
<td>166.4***</td>
</tr>
<tr>
<td></td>
<td>Exit</td>
<td>40.75</td>
<td>54.31</td>
<td>56.45</td>
<td>70.20</td>
<td>185.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(14.1)</td>
<td>(11.62)</td>
<td>(13.00)</td>
<td>(13.00)</td>
<td>(10.29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15.75)</td>
<td>(16.59)</td>
<td>(18.73)</td>
<td>(14.60)</td>
<td>(11.48)</td>
</tr>
<tr>
<td>Colleges of education</td>
<td>Entry</td>
<td>39.95***</td>
<td>47.72</td>
<td>33.82***</td>
<td>44.60***</td>
<td>183.7</td>
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<td>48.25</td>
<td>47.69</td>
<td>51.45</td>
<td>61.47</td>
<td>181.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12.85)</td>
<td>(13.72)</td>
<td>(13.73)</td>
<td>(14.13)</td>
<td>(12.20)</td>
</tr>
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<td>(17.48)</td>
<td>(14.54)</td>
<td>(11.80)</td>
<td>(13.31)</td>
</tr>
<tr>
<td>Teachers’ colleges</td>
<td>Entry</td>
<td>35.7</td>
<td>51.55</td>
<td>50.45</td>
<td>53.47***</td>
<td>180.8</td>
</tr>
<tr>
<td></td>
<td>Exit</td>
<td>40.25</td>
<td>51.45</td>
<td>50.45</td>
<td>68.27</td>
<td>181.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15.9)</td>
<td>(15.55)</td>
<td>(17.00)</td>
<td>(14.33)</td>
<td>(16.98)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(19.6)</td>
<td>(16.79)</td>
<td>(18.82)</td>
<td>(17.80)</td>
<td>(16.83)</td>
</tr>
</tbody>
</table>

**Notes**

1. The probability value of the t-test of the difference between the entry- and exit-level means is indicated as follows: *<.05; **<.01; ***<.001.
2. The knowledge and skills scales have been transformed into per cent correct. The attitude scale is the sum of ratings over all attitude scale items. Its range is 61–305.
composite index of effectiveness indicators⁶ (column a) and the total cost per cycle⁷ (column b) for each programme.

The results for Sri Lanka show a high level of efficiency for the distance-education programme in comparison with the others. Although its level of effectiveness was not as high as the college pre-service programme’s (colleges of education), its enormous cost advantage makes it much more efficient. The campus-based in-service programme (teachers’ colleges) turns out to be least efficient, a consequence of a relatively low level of effectiveness and relatively high costs.

It should be noted that the above cost effectiveness ratios included students’ costs. If the ratios were computed using only costs to sponsor, they would show even higher value for money for the distance-education alternatives.

Summary

The programme costs and effectiveness of the three main approaches to primary-school teacher training were assessed in Sri Lanka. The findings point clearly to the following conclusions.

The distance-education programme in Sri Lanka was considerably less expensive per trainee than the more conventional alternatives: total costs per trainee for distance education were about one-sixth of those for the colleges of education and about one-third of those for the teachers’ colleges. If trainee costs are not included then the distance-education programme appears even more economical, with per trainee costs about one-tenth those of the colleges of education and one-eighth those of the teachers’ colleges.

The distance-education programme places a relatively heavy cost burden on its trainees (67 per cent as opposed to 16 per cent for the colleges of education). However, since its overall costs are so low, these costs are still lower in absolute terms than those for the conventional colleges. For the teachers’ colleges, trainee costs were negative, since allowances out-weighed both fees and foregone income.
Policy-makers may be surprised at the relatively high private costs of distance-education participants, since the fees for programme participation are almost negligible, and transportation costs and incidental expenses are modest. In fact, the highest private costs by far are generally neither acknowledged nor measured, namely opportunity costs. In the distance-education programme these accounted for 70 per cent of the private costs. This is understandable since the course load in the distance-education programme is so heavy that pursuing it leaves very little time for earning supplemental income. In compensation, distance-education graduates can remain where they are currently posted, a bonus in a country which is experiencing communal turmoil.

The capital costs of the distance-education programme are extremely low (nine per cent), especially in comparison to those of the other two programmes (40 per cent and 29 per cent). This is a reflection of the programme’s rejection of the use of mass media and its lean profile both at headquarters and in the field. The fact that most of its costs go into self-instructional materials and small-group tutors (both variable costs) means that there is little or no room for further economies if and when the programme expands. Being already at a very low cost per head level, however, it does seem possible that the programme could be sustained indefinitely through routine budget allocations, even after the discontinuation of donor agency support.

An analysis of programme effectiveness has shown positive results for the distance-education programme on all indicators. Exit-level trainees attained higher scores in tests of knowledge, skills and attitudes than entry-level trainees did, with the best showings in language-teaching skills and attitudes. It seems that distance education’s combination of self-instruction and group work is more suited to acquiring knowledge and skills in language than in mathematics.

The findings for distance education were clearly more positive than those for the other in-service training programme provided by the traditional teachers’ colleges. Exit-entry group differences for distance education were larger than for teachers’ colleges in all but the language-skills dimension. On the other hand, distance-education entry-exit differences were not as positive as those for the colleges of education, except in language knowledge and attitudes. The elitist and intensive college-of-education programme seems to have been able to recruit bright young students who have quickly mastered the subject content and skills. Their enthusiasm for the profession seems to have tapered off over the course of the programme, however, perhaps after they had a taste of actual teaching experience (an impression confirmed by further erosion of attitudes during their first year of teaching). Clearly, the programme’s explicit attempts to shape teacher attitudes did not bear the kind of fruit expected.

The distance-education programme, on the other hand, was quite successful in raising teacher attitudes from low levels to high. Since there were no explicit attempts to influence attitudes (of the kind made in the college-of-education
In-service initial training of teachers

Given the distance-education programme’s relatively low costs and relatively high effectiveness, its high cost-effectiveness is not surprising. Its cost per unit of change in the effectiveness index was a fraction (one-fifth to one-sixth) of the cost for the other two programmes.

THE COST-EFFECTIVENESS STUDY IN INDONESIA

In Indonesia we sought a wide variety of geographical areas which had both the conventional and the distance D-II programmes. At first we selected three cities, two on Java (Bandung, West Java, and Surakarta, Central Java), and one on Sumatera (Palembang, South Sumatera) as a reasonable cross-section of locations. We sought to select a sample of 100 maths and 100 language trainees at both entry and exit level from both kinds of institution, as shown in Table 5.7.

The contribution of each institution to this quota was to be proportional to its size. The quotas were considered reasonable on the basis of past enrolment histories. As it turned out, there were many fewer students enrolling in the distance-education programme during our target year 1988–89 than expected, which forced us to expand our geographical range to include another three cities, Semarang, Surabaya and Malang. Even so, we were only able to find a fraction of the number of students that we sought at entry level in the distance-education programme. Our achieved sample was as shown in Table 5.8.

The failure to meet the quota of entry-level trainees in the distance-education programme is a reflection of the decline in enrolments during the target years, an issue we will discuss in the outcome section on costs. This sample size difference prompted us to check carefully the background characteristics of our entry- and exit-level groups. We wanted to be sure that they were sufficiently well-matched to permit us to use the cross-sectional design. In fact, we found that the exit-level group was significantly higher

Table 5.7 Sampling frame, Indonesia

<table>
<thead>
<tr>
<th>Programme</th>
<th>Entry</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional colleges</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>– Mathematics</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>– Language</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Distance education</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>– Mathematics</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>– Language</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Sri Lanka and Indonesia

than the entry-level group in age, teaching experience and academic ability (but not different in sex or distance from the study centre). The difference in age and teaching experience is understandable, since the exit-level group had entered the in-service programme over two years prior to the entry-level group and had continued teaching all that time. The most likely explanation for the higher academic ability scores of the exit-level group is the fact that our sample was of relatively early programme completers (they took an average of 2.5 years to complete as opposed to the overall average of about 3.5 years). Faster than average course completion may be an indication of higher than average learning ability. To take into consideration the possible confounding effects of these experience and ability factors on our outcome measures, we entered the factors in our analyses as covariates. Thus the means scores on the outcome measures for the distance-education programme are adjusted for teaching experience and academic ability.

We compared the background and experience of those at entry and exit in the campus-based programmes and found the two groups to be basically homogeneous. Thus there was no need to use covariates in the case of the conventional programmes.

Data collection

Cost data were collected through interviews (institutional data) and questionnaires (student data) just as in Sri Lanka. Data collection for the subject-matter test was also done essentially as it was in Sri Lanka, except that each trainee only took one test. Concerning teaching skills, all trainees took a paper-and-pencil test of understanding appropriate teaching behaviours, which we refer to as ‘skills (theory)’. Items on this test were based on the Ministry of Education’s list of ten basic teaching competencies, including such dimensions as classroom management, use of media resources, managing student-teacher interactions and evaluating student achievement. In addition, a 20 per cent sample of respondents, drawn at random from each institution, was asked to prepare and present a 20-minute microteaching lesson on a

<table>
<thead>
<tr>
<th>Programme</th>
<th>Entry</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional colleges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Mathematics</td>
<td>126</td>
<td>121</td>
</tr>
<tr>
<td>– Language</td>
<td>99</td>
<td>91</td>
</tr>
<tr>
<td>Distance education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Mathematics</td>
<td>43</td>
<td>95</td>
</tr>
<tr>
<td>– Language</td>
<td>42</td>
<td>87</td>
</tr>
</tbody>
</table>
standard topic in either mathematics or language before a class of teenagers. This appears in our tables as ‘skills (practice)’. Observers, trained to high levels of inter-rater reliability through the use of videotapes, rated the lessons using seven-point scales on dimensions such as preparation, organisation, use of audiovisuals, relevance to the pupils’ lives, involvement of class members, use of feedback, learning evaluation and teacher enthusiasm. Two observers rated each teacher.

Attitudinal measurement was accomplished as in Sri Lanka through the use of a locally developed attitude scale. Items to measure the attitudinal dimensions mentioned above were created by one of Indonesia’s experts on teacher attitudes assessment. For purposes of validation, they were administered to two groups of 25 teachers, one characterised by their principals as having positive attitudes towards teaching, and the other as having negative attitudes. Those items which discriminated between the two groups in the expected direction were used in our final analysis.

Data analysis

The data were analysed basically in the same way as in Sri Lanka: total costs were broken down by source of funds (sponsor or students), and into categories of capital and recurrent. Effective measures were presented separately for the two subject areas, mathematics and language. They were presented as means scores (or adjusted means scores in the case of the distance-education programme) for subject-matter mastery, teaching skills (theory), teaching skills (practice), and professional attitudes. For the cost effectiveness analysis an effectiveness index was formed including all but the attitudinal items using standard or Z-scores.

FINDINGS: INDONESIA

Programme costs

Our unit cost analysis, which is summarised in Table 5.9, shows that the distance-education programme in Indonesia is less expensive than the conventional college programme, the overall costs of the former being about 60 per cent of the costs of the latter ($952 versus $1,578). As in Sri Lanka, distance-education trainees bear a considerably higher proportion of the costs than trainees do in the conventional colleges: 64 per cent as opposed to 29 per cent. This high level of ‘cost recovery’ from clients has allowed the Open University to keep its institutional costs down, to the point that they have only about one-third the institutional costs of the conventional colleges.

Returning to the costs to trainees, it can be seen that the distance-education trainees pay more than the conventional programme trainees, not only in
relative terms, but also in absolute terms ($613 compared to $461). The amount for the distance-education programme has been converted into a full-time equivalent figure. Since the trainees take about 3.5 years on average to finish the 40-unit programme, the actual amount that they pay or forego per year is around $175. During 1987–88 a lower-secondary-school teacher was earning on average about $122 per month or about $1,400 per year. This means that the actual cost of the programme to the trainees came to about 12 per cent of annual earnings. In a previous study of D-II programme costs (Nielsen and Djalil, 1989), it was demonstrated that student drop-out began to become a problem when the course costs reached 16 per cent of annual income. The private cost burden in this study already approaches that proportion on the average, and is certainly at or above that figure for a number of participants. This will clearly have an effect on perseverance in the distance-education programme as well as initial demand for it, unless new incentive systems introduced in 1990–91 make the courses look attractive again.10

A breakdown of trainees’ expenses shows that around 60 per cent are opportunity costs. This finding replicates a similar one in Sri Lanka, and once again contradicts the frequently made assertion that distance-education programmes carry no opportunity costs. A large proportion of the trainees have to sacrifice their earnings from second and third jobs in order to pursue the course. In the early years of the programme this sacrifice was compensated for by the scholarships to cover course fees and materials. Recent government moves towards more financial austerity (forced in part by falling oil prices) have all but eliminated government scholarships, removing an important financial incentive. This is clearly one explanation for the drastic fall in new enrolments in the past two years. Prospective trainees are finding that the benefits of an Open University D-II programme are not worth the costs to them, especially when they can use their spare time working at jobs like teaching in private schools or tutoring.11 If such trends continue, they could seriously affect enrolments and the capacity of the programme to benefit from economies of scale.

The mix between capital and recurrent costs in Indonesia is illustrated in Figure 5.3 and is the opposite to that found in Sri Lanka. The distance-education option here devotes about twice as much to capital expenditures as the conventional programmes do (33 per cent compared to 16 per cent).
The conventional D-II programmes are offered on large university or institute campuses where they typically share facilities (libraries, lecture halls) with other programmes. Their main costs are thus recurrent, largely to cover staff salaries. In contrast, the Open University programme spends relatively little on its teaching staff, since tutorials are a minor feature in its course, but has invested heavily in new campus facilities, course development, and the production of audiovisual materials (radio and TV programmes, and audiocassettes). The relatively high capital costs make Indonesia’s distance-education programme more expensive than Sri Lanka’s, but since these can be spread ever thinner as the student body increases, the programme is in a better position to reap the benefits of economies of scale. This is all the more reason to be concerned about the decline in enrolments.

Programme effectiveness

The relative effectiveness of the distance-education programme in Indonesia is illustrated in Table 5.10 and Figure 5.4. Once again, it should be emphasised that the results for the distance-education programme are for a one-year full-time equivalent course, whereas those for the conventional colleges are for a two-year programme.

Looking at the results for the distance-education programme (Figure 5.4), it is clear that the one-year programme has made a considerable difference in the language programme participants’ subject-matter mastery and teaching skills, but relatively little difference in practical skills. In contrast, the one-year programme in mathematics has had virtually no impact on subject-matter mastery and teaching skills, but a small impact on practical skills. In both courses, the impact on practical skills seems to be constrained by the fact that learners entered their respective programmes with relatively high marks in practical skills (see Table 5.10). Such levels can be seen as creating a ceiling effect. Even if the programme had emphasised practical skills training (which it did not) trainees probably would not have shown much change, because of
In the realm of attitude acquisition the results were strikingly similar for the two courses: in both, professional attitudes at exit are lower than at entry.

In the conventional, two-year, campus-based programme, both courses show significant differences between exit and entry on the subject-matter and skills indicators. In the mathematics course the differences were robust on all measures except attitudes. In the language course, the differences were strong in subject-matter mastery and teaching practice, but relatively modest on the theoretical knowledge about teaching. On the attitude measures there was virtually no difference between exit and entry in both courses.

Comparisons between the two kinds of courses need to be done carefully, because of the differences in length. If one converted the differences between entry and exit for conventional colleges’ differences per year, they would still be much higher than those of the distance-education programme in mathematics. In language, the differences per year for the conventional colleges would be about the same as those for the distance-education

### Table 5.10 Mean scores on programme effectiveness measures for Indonesia (standard deviations in parentheses)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Level</th>
<th>Subject matter</th>
<th>Skills (theory)</th>
<th>Skills (practice)</th>
<th>Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distance education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mathematics</td>
<td>Entry</td>
<td>43.1</td>
<td>65.7</td>
<td>75.2</td>
<td>68.9*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(13.1)</td>
<td>(10.6)</td>
<td>(9.0)</td>
<td>(7.9)</td>
</tr>
<tr>
<td></td>
<td>Exit</td>
<td>44.0</td>
<td>65.5</td>
<td>78.5</td>
<td>62.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11.2)</td>
<td>(9.5)</td>
<td>(9.8)</td>
<td>(8.7)</td>
</tr>
<tr>
<td>- Language</td>
<td>Entry</td>
<td>51.6*</td>
<td>61.0</td>
<td>77.1</td>
<td>69.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11.1)</td>
<td>(9.7)</td>
<td>(11.6)</td>
<td>(9.0)</td>
</tr>
<tr>
<td></td>
<td>Exit</td>
<td>56.9</td>
<td>65.0</td>
<td>80.0</td>
<td>64.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7.5)</td>
<td>(10.2)</td>
<td>(8.2)</td>
<td>(9.2)</td>
</tr>
<tr>
<td><strong>Conventional colleges</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mathematics</td>
<td>Entry</td>
<td>40.0***</td>
<td>61.4***</td>
<td>58.3*</td>
<td>64.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9.38)</td>
<td>(8.3)</td>
<td>(10.7)</td>
<td>(7.6)</td>
</tr>
<tr>
<td></td>
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<td>66.9*</td>
<td>69.4**</td>
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<td>(11.0)</td>
<td>(8.9)</td>
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<td></td>
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<td>(7.0)</td>
<td>(8.4)</td>
<td>(8.0)</td>
<td>(8.2)</td>
</tr>
</tbody>
</table>

**Notes**
1. The probability value of the t-test of the difference between the entry- and exit-level means is indicated as follows: *<.05; **<.01; ***<.001.
2. For the distance-education programme all mean scores were adjusted for trainee academic ability and teaching experience using ANOVA.
programme in subject-matter mastery, but lower in skills (theory) and higher in skills (practice). Thus, on balance the conventional-college language course appears to be no more effective than the distance-education course.

If one compares the two kinds of programmes on attitudinal change, it is apparent that the distance-education programme participants moved in a negative direction, whereas those in the conventional colleges did not move at all. Both programmes have specified professional attitude change as an important goal, but neither has implemented any explicit programme to accomplish this. The apparent negative effects on the distance-education programme are seen as side-effects of the following: (a) frustration or disillusionment among the trainees as a result of having to work in isolation; (b) the discrepancy trainees might feel between their new credential and their professional status/salary level, which would not have changed yet, and which may not change as fast as they feel it should for recent graduates of a higher programme. A further explanation has to do with the reliability and validity of our attitude measures. There were so few items in our final validated scale

Figure 5.4 Standard scores on effectiveness measures, Indonesia
Sri Lanka and Indonesia

(12) that its stability could be a problem. In addition, no matter how hard we tried to validate the items in our scales, we found measurement in this realm to be elusive, given the Indonesian preoccupation with giving socially desirable answers. It would be desirable to review this issue in future studies using more qualitative research methods.

Programme cost-effectiveness

The cost-effectiveness assessment in Indonesia (Table 5.11) is one way to compensate for the different lengths of the two kinds of programmes. In it, the effectiveness measures for the programme are combined (using standard scores) and then compared with the costs for the entire cycle (either one or two years).

Thus, for the distance-education course, the effectiveness measures are compared to the costs for one full-time equivalent year, and those for the conventional programmes with two years. The cost effectiveness ratio can be taken as an indicator of programme efficiency. As shown in Table 5.11, the distance-education programme appears more efficient than the conventional programme in language, but considerably less so in mathematics. The former outcome is almost entirely explained by the lower costs of the distance-education programme, since the effectiveness indicators are almost the same for the two kinds of programmes. The outcome for mathematics is mainly a reflection of the low level of effectiveness in the distance-education programme, the difference between entry and exit level being almost non-existent. Thus, even though the distance-education maths course is considerably cheaper than the pre-service equivalent, its low level of effectiveness makes it relatively inefficient. In overall terms, the most cost-effective programme appears to be the distance-education programme in

<table>
<thead>
<tr>
<th>Programme</th>
<th>Differences in composite index ((T2-T1)) (a)</th>
<th>Total cost per cycle (b)</th>
<th>Cost per unit difference (b/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mathematics</td>
<td>0.33</td>
<td>946</td>
<td>2,867</td>
</tr>
<tr>
<td>- Language</td>
<td>1.10</td>
<td>958</td>
<td>871</td>
</tr>
<tr>
<td>Conventional college</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mathematics</td>
<td>2.21</td>
<td>2,997</td>
<td>1,356</td>
</tr>
<tr>
<td>- Language</td>
<td>1.88</td>
<td>3,314</td>
<td>1,723</td>
</tr>
</tbody>
</table>

Note

a. The composite scores are the sum of Z-scores for the effectiveness measures.
language, and the least effective appears to be the distance-education programme in mathematics. Of the two programmes in the middle, the conventional programme in mathematics is more cost-effective than the conventional programme in language, not only because it is more effective but also because it is cheaper.

Summary

Assessment of the costs and effectiveness of the two major approaches to lower-secondary-school teacher training in Indonesia presented formidable methodological challenges, but in the end some clear patterns were discernible.

The distance-education programme was less expensive than the conventional-college programmes in terms of total costs per student per year (or equivalent). In overall costs, the distance-education programme was about 60 per cent as expensive as the conventional-college course, but when private costs were removed, the distance-education costs per student were found to be about only 30 per cent as expensive as those for the conventional colleges.

Students in the distance-education programme bear a relatively high cost burden: about 64 per cent of total costs as opposed to 29 per cent for the campus-based students. The actual amount spent or foregone by distance-education students is higher than that incurred by conventional-programme students when full-time equivalent costs are compared. In practice, distance-education students spread those costs over 3.5 years on average, but even this results in expenditures which are about 12 per cent of annual earnings for the average lower-secondary-school teacher.

A large proportion (about 60 per cent) of the costs to trainees are opportunity costs, a finding which contradicts the frequent assertion that distance-education programmes allow learners to maintain their regular earning patterns. This situation, combined with the fact that scholarships for the D-II programme have been virtually eliminated, has depressed the demand for the D-II course, and threatens in the long term to reduce the level of course enrolment below that required to generate economies of scale.

Capital costs are a much higher proportion of total costs in the distance-education programme than in the conventional college programmes. This reflects the trade-off between the use of courseware production and mass media in the former (high on capital costs) and the use of large forces of lecturers and administrators in the latter (high on recurrent costs). This kind of mix will allow the distance-education programme to reduce its per capita costs with the increase in the number of trainees, since the same fixed costs can be spread over greater numbers of participants.

The distance-education programme in language appears to be relatively effective, even after the equivalent of only one full-time year (40 units), particularly in mastery of content matter and knowledge about teaching skills.
Its effectiveness was not demonstrated in the area of practical skills improvement. In the field of mathematics, the 40-unit distance-education programme was not effective in any of the effectiveness domains, but its effect appeared particularly weak in subject-matter mastery. As in Sri Lanka, it appears that distance education in Indonesia is more effective in conveying knowledge and concepts than it is in conveying practical and computational skills.

Cost-effectiveness analysis showed that the most efficient of the programmes was the language programme provided through distance education. Its effectiveness after one full-time equivalent year was almost as high as that of the two-year campus-based programme, and its cycle costs were only one-third those of the comparison programme. The same analysis showed the distance-education maths programme to be relatively inefficient. Although its economies were about the same as those of the language programmes, its extremely low effectiveness scores caused it to show very high costs per unit of effectiveness, higher than for either of the two conventional-college programmes.

CROSS-NATIONAL COMPARISONS

The two studies reported on here, conducted under the BRIDGES Project in Indonesia and Sri Lanka, are attempts to provide empirical evidence concerning the cost-effectiveness of distance-education programmes for teacher training. This was undertaken in order to assist policy-makers in identifying effective, yet affordable, ways of upgrading teachers, even during these times of constrained or shrinking educational budgets. The cost-effectiveness of distance-education programmes was compared to more conventional programmes so that there might be a basis for determining value for money and a sense of the comparative advantages of the two kinds of approaches. Beyond that, the findings in the two countries were compared in order to see if there were any discernible patterns across countries and to explore the possible effects of distance-education design factors.

In general it can be maintained that distance-education programmes for teacher training in Sri Lanka and Indonesia do provide value for money, particularly when only government expenditures are considered. This was especially true in Sri Lanka, where the economies were especially strong and programme effectiveness was in evidence for all indicators. In Indonesia the economies were also apparent, albeit weaker, but effectiveness was demonstrated only in the language programme.

The main feature which distinguished between the distance-education programmes in the two countries was the degree of student support through learning groups and tutors. In Sri Lanka there were various forms of learning-group activities (study circles, practical sessions, and contact sessions during school vacations) as well as counselling, feedback and school visits by tutors.
In Indonesia there were at most two optional tutorials per semester, both large-group affairs where trainees assembled in lecture halls to have their questions answered. Our basic premise is that the Sri Lankan style tutorial and group activities were what made the difference in the effectiveness of the distance-education programmes in the two countries, essentially because they included small-group problem-solving sessions and linked what was being learned in the course with what the teacher trainees were doing in the classroom. This school-focused form of distance education appears to have influenced attitude changes as well: trainees involved in it appear to have developed more positive attitudes towards teaching, while trainees in Indonesia—left essentially on their own—experienced attitude shifts in the negative direction.

As an alternative (and in fact more conventional) distance-education model, the Indonesian programme provided more in the way of mass-media support—radio, television and audiocassettes. However, these do not appear to be widely used. The courses are still primarily print-oriented and self-instructional. The findings of this study lead to the assertion that the small-group tutorial is a much more effective means of supporting teacher training than is the use of mass media. This is consistent with the position of others (Dodds, 1988) who have demonstrated that distance education in third-world countries should not be too distant, but instead entail a combination of distance teaching and small-group interaction.

The fact that, in both countries, maths knowledge and teaching skills are more effectively learned in conventional pre-service courses than through distance education is a finding to be dealt with by the distance educators. In Indonesia, once background characteristics are controlled, there appears to be very little change in maths knowledge or teaching skills (theory). In Sri Lanka there is some positive movement during the course but not as much as in the colleges of education. We conclude from this that distance education, which is largely (even in Sri Lanka) built on self-instruction, is not as effective in conveying skills as it is in providing knowledge and information. For this reason we could speculate that it would not be particularly effective for training in science (which is precisely what Mählck and Temu, 1989, found in Tanzania), but relatively strong in the social sciences (yet to be tested). It may also be weak in teaching languages other than the mother tongue, since this also involves the acquisition of new skills. The point is that mathematics, certain kinds of science, and foreign languages all require the mastery of skills, whereas the other subjects require the understanding and recall of facts and information. Skill acquisition is more difficult through self-instruction, since it requires exercises and practice and, preferably, live feedback. The Sri Lankan distance-education programme, through its group work and tutorials, provides some of this, and is therefore moderately effective with maths and teaching skills. Even so, it still does not measure up to the campus-based college of education programme.

Overall, it is clear that for effective teacher upgrading, distance-education programmes should not be too distant. They require support and group-
learning systems that are linked with schools and focused on day-to-day school problems. To be most effective they also need to provide some practical sessions and tutorial visits. This sounds expensive, but the experience in Sri Lanka shows us that it need not be so, especially if the programme uses existing premises and does not invest heavily in mass media. Such distance-education systems may be considered school-oriented or school-focused (Bolam, 1982) as opposed to media-focused.

**IMPLICATIONS FOR POLICY**

From the beginning this research was designed to address policy issues, both at the national and at the international level. At the national level, the hope was to provide input into fairly specific programme design and management issues; at the international level it was to reveal some general patterns that might suggest new or better ways of improving the quality of basic education. In presenting the policy implications of this research, we will consider those at the general or international level first; then we will proceed to the more specific national arenas. Given the fact that many countries face similar problems, it is likely that even national-level policy recommendations will find applications beyond the relevant country’s borders.

**General implications**

Using the standard of cost-effectiveness, our findings seem to justify the use of distance education for the in-service training of teachers. The case is especially strong for subjects that are based on verbal skills or the acquisition of knowledge and information. The case is less strong for the acquisition of maths skills and the development of attitudes, yet the experience in Sri Lanka shows that under the right circumstances even these can be done cost-effectively. The use of local learning groups, especially to practise teaching skills and reflect on how the new learning relates to the teacher’s own classroom situation, appears to be one (if not the) key ingredient of an effective distance-education programme. Such groups, and occasional school visits by tutors, tend to make the learning programme school-focused and relevant to the teacher’s needs, features which seem to account for high teacher morale and positive attitudes towards teaching. Furthermore, it cannot be assumed that just because a teacher is experienced, that teacher cannot learn more in the way of teaching skills: school-focused distance education has the capacity to lift teachers to higher levels of teaching competence.

Concerning costs alone, distance education can cut the cost of teacher education from one-sixth to two-fifths of what is spent on equivalent conventional programmes, as long as the programme maintains an enrolment high enough to capture economies of scale (in the thousands). Distance-
education programmes also provide the opportunity for cost recovery from students that conventional programmes, for reasons that are often political, cannot. Such cost recovery still does not place an undue burden on the trainees, since the overall costs of the programmes are so modest. When judging the level of the cost burden, however, policy-makers need to be sensitive to the likelihood of the students’ incurring opportunity costs: in many cases this part-time instruction will compete with a teacher’s secondary sources of income.

Implications for Sri Lanka

The findings in the case of Sri Lanka seem to show that the traditional, residential, in-service teachers’ college programmes have been surpassed in cost-effectiveness by the more recent alternatives (pre-service and distance) and may not be worth maintaining any longer. They also show that the preservice programmes’ (college of education) high costs have pulled their value for money down to a level well below that for distance education. The preservice programmes do appear to be serving the extremely important function of drawing talented youth into the teaching force, who can be placed (at least initially) in difficult areas. However, these programmes are expensive to set up and maintain, and their output is currently far below that needed to fill the current demand for new teachers. Given the high capital costs of the colleges, mounting them in sufficient numbers may be out of reach. Thus, the government may need to consider ways of substantially reducing the costs of these colleges, perhaps by using physical facilities of other programmes, such as any teachers’ colleges that may be closed in the future.

Concerning the distance-education programme, it appears to have an important role to play in upgrading the current backlog of untrained teachers. Given the low costs of the programme, it could be expanded quickly at relatively little expense, allowing it to clear the backlog even faster than it does now. Once it does so, however, it will reach the paradoxical point of having eliminated its reason for being. At this point, all teacher education would presumably be through the pre-service mode.

But this situation will also present a paradox, since the success of the programme to date has been based largely on its selectivity or élitist image. Once all teachers are trained in this mode, this image will disappear. At this point, the élitist route will more than likely be through the university. Already a few ‘graduate’ teachers are being produced. If international trends are any guide, Sri Lanka will eventually move towards the standard of requiring new teachers to have university degrees. But this route is even more expensive than colleges of education.

One way to overcome this dilemma is to draw distance education into the process of pre-service teacher education. Providing some of the pre-service
training via on-the-job training, using Sri Lanka’s system of school-focused, group-oriented distance education, may allow for substantial savings. Such hybrid programmes have already been used in other countries such as Zimbabwe (Gatawa, 1986, on the ZINTEC programme) and Papua New Guinea (Crossley, 1989; Guy, 1989), using alternating periods of residential and distance training. Drawing distance education into pre-service training in this manner would also mean that the skills and infrastructure developed for this successful innovation would not be wasted but used to their fullest.

**Implications for Indonesia**

Indonesia’s distance-education programme has the potential to provide cost-effective training in a wide variety of fields, but now it appears that trainees are too isolated. The organisation of learning groups, close to the trainees’ schools and with activities focused on school problems and conditions, would appear to be a means for improving programme effectiveness. Such a move would also be a way to reduce the relatively high student cost-burden of the current Open University programme. For example, with groups closer to home, trainees would pay less for transportation to tutorials and exams and would be able to pool modules with nearby fellow students (perhaps through the establishment of some sort of learning-materials library).

Efforts to lower the private costs of distance education in Indonesia should be taken seriously. At this point, when opportunity costs are included, such costs are higher for distance education than they are for conventional training. This seems to be one reason for the recent drop in enrolment: the benefits derived from the training simply have not seemed to justify the costs and effort. Nielsen and Djalil (1989) have shown that distance-education trainees begin to lose their incentive to pursue the course once its costs are beyond 16 per cent of their annual earnings, a level found in the case of many trainees. Relief could come through opening local study centres as mentioned above, re-instituting scholarship support, especially to those in difficult circumstances (living in remote areas, having many dependents, having no chance for supplementary income, and so on), and instituting a counselling programme for trainees to help them manage their time to reduce foregone income. In Indonesia, increasing participation in the programme can have a multiplier effect, since the greater the enrolment the lower the unit costs. The reduction in unit costs could presumably be passed on to the students in the form of reduced fees, a further incentive for increased enrolment. From another point of view, obtaining D-II teaching certificates will need to be made more rewarding both professionally and financially.

During the course of this research many of the recommendations mentioned above have become increasingly feasible. For example, during 1989 a decision was made to offer the D-II programme to primary-school
teachers, in this case with a very intensive (that is, weekly) group-tutoring component at the school-cluster level. A logical next step would be to put such a component in the programme for lower-secondary-school teachers also. In addition, new professional support mechanisms are being set up at the sub-district level for secondary-school teachers called subject-matter discussion groups. These might be used as a vehicle for the D-II group-learning activities, and, given the problem-solving orientation of these groups, they would be able to make the D-II programme more school-focused. Finally, in early 1990 Indonesia initiated a civil service reform which will provide good promotion possibilities for teachers who upgrade their credentials from D-I to D-II. Policy-makers will need to watch carefully to see whether this provides additional motivation for enrolment in the D-II course among lower-secondary-school teachers.

CONCLUSION

The findings of this study seem to indicate that there is a relatively inexpensive way for governments to increase the effectiveness of their teaching force. Distance-education teacher-training programmes, at least those in Sri Lanka and Indonesia, are cost-effective, especially those that combine self-instruction with tutor-supported small-group learning; and particularly in subjects that require the mastery of knowledge and information. Maths and teaching skills can also be mastered through distance education, but only when tutorial support and group-learning processes are strong. The low institutional costs of distance-education programmes are, at least in part, a function of economies of scale and a relatively large cost burden being shifted to the trainees. This suggests the need to keep enrolments up and cost recovery from trainees relatively high—but not so high as to depress student demand. Institutional innovation, based on research and experimentation, will need to continue, so that distance education can reach its full potential in improving the quality of teaching.

NOTES

1 Now referred to in English as the Indonesian Open Learning University.
2 Those counting the costs of distance-education programmes often use the ‘technical approach’ (Eicher et al., 1972), which divides costs into four categories: general administration, production, distribution or transmission, reception. These categories are particularly relevant to various aspects of mass-media use, and since such use was minimal in the courses studied in Indonesia and Sri Lanka, this approach was found to be less appropriate than the more traditional approach advocated by Tilak (1985).
3 The total numbers of institutions in the three categories were as follows: colleges
of education, seven; teachers’ colleges, 16; distance education (regional centres), 30. The original intent was to sample from all regions of the country, but the law and order conditions at the time of data collection did not permit safe access to the north and south. The names of the institutions chosen were as follows: Hapitigama College of Education, Mahaweli College of Education, Bolawalana Teachers’ College, Gampola Teachers’ College, Kandy distance education regional centre, Kegalle distance education regional centre.

4 A study conducted among college-of-education graduates in their first year of teaching shows them to have scores on the attitude test that are about 20 points (12 per cent) lower than those of a comparable group at graduation (Tatto et al., 1991).

5 The average group attitude scores for those in distance-education programmes were as follows: entry level, 166.4; exit level, 185.1; the year after graduation, 160.38 (Tatto et al., 1991).

6 We excluded the attitude measures, as mentioned above, since results on them were inconsistent with the results on the other measures.

7 The cycle is the length of time for programme completion. Since the distance-education programme does not involve full-time study, the costs for the equivalent of a full-time programme were used. In Sri Lanka, where the distance-education programme covers the equivalent of two years of full-time study, this meant determining the full-time equivalent annual costs for a base year and then adding a second year with appropriate adjustments for inflation.

8 For this we used a conventional test of differences between means scores of background variables (t-tests) as well as a test of the homogeneity of variance in those variables, called the Bartlett-Box F test, which tests the hypothesis that the two groups are from different populations (based on the size of the variance for the variable for each sample); see the SPSS/PC + V2.0 Base Manual (Chicago, Illinois: SPSS Inc., 1988).

9 The indicator for ‘academic ability’ was first-semester exam scores on courses which were given to all trainees. The exams have not changed in substance during the past three years.

10 The new programme is called the ‘functional credit system’ and is set up to provide a means for accelerating promotions. In it the upgrading of academic credentials is an important accelerator. However, it is too early to tell whether this system has created a reversal of recent D-II enrolment declines.

11 Ironically, those in rural areas are finding the Open University’s D-II course more attractive than those in the city, even though course costs, such as transportation to study centres, are on average much higher for them. The best explanation appears to be that they have fewer opportunities for finding outside jobs, such as teaching at private schools, and thus have lower opportunity costs. Previous studies (Nielsen and Djalil, 1989) also show that they attach higher status to an Open University degree than people from the cities do.

REFERENCES


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Nielsen, H.D. and Djalil, A. (1990): The efficiency of various programmes for the training of lower secondary school teachers in Indonesia, BRIDGES Project manuscript (draft), Cambridge, Massachusetts: Harvard University.


APPENDIX 5A

To illustrate the procedure used for costing, the following tables show detailed
costs from Sri Lanka for one teachers’ college and one distance-education regional centre, together with summary data for two teachers’ colleges, two colleges of education, and two distance-education regional centres. Data were obtained from the participating institutions.

Table 5A.1 Institutional and personal costs per annum, 1988—Bolawalana Teachers’ College (Currency: Sri Lanka rupees)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Total cost</th>
<th>Cost to sponsor</th>
<th>Cost to student family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecturers/Instructors</td>
<td>965,252</td>
<td>965,252</td>
<td></td>
</tr>
<tr>
<td>Admin. and Supt. staff</td>
<td>549,240</td>
<td>549,240</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>787,325</td>
<td>787,325</td>
<td></td>
</tr>
<tr>
<td>Furniture and equipment</td>
<td>225,740</td>
<td>225,740</td>
<td></td>
</tr>
<tr>
<td>Utilities/Communications</td>
<td>82,437</td>
<td>82,437</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>464,548</td>
<td>464,548</td>
<td></td>
</tr>
<tr>
<td>Supplies and materials</td>
<td>89,660</td>
<td>20,000</td>
<td>69,660</td>
</tr>
<tr>
<td>Books and publications</td>
<td>190,810</td>
<td>76,000</td>
<td>114,810</td>
</tr>
<tr>
<td>Transportation</td>
<td>433,923</td>
<td>38,000</td>
<td>395,923</td>
</tr>
<tr>
<td>Room and board</td>
<td>894,000</td>
<td></td>
<td>894,000</td>
</tr>
<tr>
<td>Medical/welfare services</td>
<td>74,848</td>
<td>2,500</td>
<td>72,348</td>
</tr>
<tr>
<td>Student activities</td>
<td>64,125</td>
<td>5,000</td>
<td>59,198</td>
</tr>
<tr>
<td>Personal expenses</td>
<td>156,198</td>
<td></td>
<td>156,198</td>
</tr>
<tr>
<td>Foregone income</td>
<td>886,553</td>
<td></td>
<td>886,553</td>
</tr>
<tr>
<td>TOTAL INGREDIENTS COST</td>
<td>5,864,657</td>
<td>3,216,042</td>
<td>2,648,615</td>
</tr>
<tr>
<td>STUDENT ALLOWANCES</td>
<td>6,220,877</td>
<td>6,220,877</td>
<td>(6,220,877)</td>
</tr>
<tr>
<td>STUDENT FEES</td>
<td>(40,200)</td>
<td>(40,200)</td>
<td>40,200</td>
</tr>
<tr>
<td>NET COSTS</td>
<td>12,045,334</td>
<td>9,396,719</td>
<td>(3,532,615)</td>
</tr>
<tr>
<td>No. of students</td>
<td>447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL COST/STUDENT</td>
<td>13,120</td>
<td>7,195</td>
<td>5,925</td>
</tr>
<tr>
<td>NET COST/STUDENT</td>
<td>26,947</td>
<td>21,022</td>
<td>(7,902)</td>
</tr>
<tr>
<td>In US Dollars</td>
<td>898</td>
<td>701</td>
<td>(263)</td>
</tr>
</tbody>
</table>

Notes
a. Sponsor is considered to be the Ministry of Education. Data were gathered through interview with college administrators, corroborated by the examination of Ministry of Education records of funds allocated. Central records could not be used to confirm actual amounts spent since those for 1988 will only be released in 1990.

b. Student costs were estimated on the basis of data collected from a sample of 40 recent graduates (about 33 per cent of their cohort). The expenses they reported were for the year 1987. They have been adjusted to 1988 prices using an inflation rate of 7.5 per cent.

c. Includes full- and part-time professional staff as well as those on secondment (paid by another institution within the ministry).

d. Includes administrators as well as hostel workers and casual labourers.

e. Buildings are amortised over a 50-year period at a discount rate of 12 per cent (the rate used by the National Savings Bank during the past decade). Cost figures were based on estimated replacement value of current buildings.
In most cases estimated replacement value of college durable equipment was used, including furniture of lecture halls, offices and hostels; capital equipment such as overhead projectors and duplicating machines; vehicles; sports and recreational equipment; maintenance equipment and laboratory equipment/library books. The costs were annualised over the estimated life-time of the equipment (five, ten, 15 or 20 years) at a discount rate of 12 per cent. In case purchase price was given, a current dollar (rupee) value was estimated using an annual inflation rate of 7.5 per cent.

Books and publications: this is for books and publications purchased and used in 1988. The stock of library books is counted as a capital cost under furniture and equipment.

Incurred by or for students for health problems during their pursuit of the course.

Estimated by the students as the earnings they gave up each month (second job, giving tutoring, and so on) as a consequence of being enrolled in the programme. Multiplied by 12 to yield an annual amount.

These are not strictly student allowances but annual salary figures. The participants are experienced teachers on leave-of-absence for training for two years. During that time they collect their regular salaries. These are counted as an expense to the ministry since it will presumably need to find replacements for them (or bear their loss in terms of a reduction of effectiveness in their home schools).

Net costs for the students are their expenses plus student fees minus their allowances (salaries). These are negative for teachers’-college students, meaning that their salary more than covers their expenses. This is the case even when opportunity costs are taken into consideration Net costs from the institutional point of view are the sponsors’ expenses minus student fees (income) plus teacher allowances (salaries).

This college has programmes in primary education, English and religion (Roman Catholicism). Resources, both physical facilities and teaching staff, are shared, and it is difficult to develop a basis for allocating a share to the primary-education programme alone. Since there is little difference in the programmes in terms of their resource requirements, we based unit costs calculation for the primary-education programme on those for the entire college. Thus total costs were those for the college as a whole and the number of students, 447, included those from all programmes. The resulting unit cost (cost per student) is equivalent to allocating resources just to the primary-education programme and dividing by the number of primary-education programme participants.

Table 5A.2 Institutional and personal costs per annum, 1988—Kandy distance education regional centre (Currency: Sri Lanka rupees)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Total cost</th>
<th>Cost to sponsor</th>
<th>Central office</th>
<th>Regional centre</th>
<th>Cost to student/ family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecturers/Instructors</td>
<td>331,298</td>
<td>331,298</td>
<td>108,780</td>
<td></td>
<td>222,518</td>
</tr>
<tr>
<td>Admin. and Supt. staff</td>
<td>21,137</td>
<td>21,137</td>
<td>18,600</td>
<td></td>
<td>2,537</td>
</tr>
<tr>
<td>Buildings and land</td>
<td>68,520</td>
<td>68,520</td>
<td>4,200</td>
<td></td>
<td>64,320</td>
</tr>
<tr>
<td>Furniture and equipment</td>
<td>22,037</td>
<td>22,037</td>
<td>13,000</td>
<td></td>
<td>9,037</td>
</tr>
<tr>
<td>Utilities/communications</td>
<td>7,900</td>
<td>7,900</td>
<td>7,900</td>
<td></td>
<td>7,900</td>
</tr>
<tr>
<td>Maintenance</td>
<td>6,500</td>
<td>6,500</td>
<td>6,500</td>
<td></td>
<td>6,500</td>
</tr>
<tr>
<td>Supplies and materials</td>
<td>55,645</td>
<td>4,573</td>
<td>2,300</td>
<td></td>
<td>2,273</td>
</tr>
<tr>
<td>Books and publications</td>
<td>256,956</td>
<td>229,425</td>
<td>229,425</td>
<td></td>
<td>27,531</td>
</tr>
</tbody>
</table>
Sri Lanka and Indonesia

a. Allocation of central-office costs to the primary-education programme of this regional centre was done on the basis of the proportion of its primary-education programme participants (399) in relation to the total number of students in the distance-education programme in 1988 (7,484—a downward adjustment of official figures for that year taking into consideration that the first cohort complete its course in August).

b. Regional-office costs were estimated on the basis of an interview with the chief tutor. Since regional offices manage both primary education and secondary maths/science courses we have allocated regional-office costs to the primary-education programme on the basis of the proportion of students involved.

c. Books and publications from the sponsor’s (central office) point of view include self-instructional modules, the main medium for delivering the course.

d. Includes the cost of delivering modules.

e. Foregone income was determined based on participants' indication of the earnings they lost in part-time work (tutoring, and so on) on account of their involvement in the course.

f. There are no student allowances for this course. Participants do receive their regular salaries as teachers, but since they maintain a full teaching load there are no replacement costs or reduction in the teaching force at their schools.

g. The primary-education course at both the teachers' college and the college of education takes two years of course work (plus an additional year of supervised practice in the field). To complete the distance education programme students take up to five years, the average completion time at the two centres in our study being 3.1 years. Full-time equivalence was computed by dividing the average completion time in distance education by the completion time for full-time students: 3.1/2 = 1.55. We weighted all of the annual cost items of the distance-education programme by this factor (1.55).

<table>
<thead>
<tr>
<th>Item</th>
<th>43,306</th>
<th>5,800</th>
<th>5,800</th>
<th>37,306</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room and board</td>
<td>77,805</td>
<td></td>
<td></td>
<td>77,805</td>
</tr>
<tr>
<td>Medical/welfare services</td>
<td>55,000</td>
<td></td>
<td></td>
<td>55,000</td>
</tr>
<tr>
<td>Student activities</td>
<td>67,431</td>
<td></td>
<td></td>
<td>67,431</td>
</tr>
<tr>
<td>Foregone income&lt;sup&gt;e&lt;/sup&gt;</td>
<td>807,177</td>
<td></td>
<td></td>
<td>807,177</td>
</tr>
<tr>
<td>Teacher training</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL INGREDIENT COST</strong></td>
<td>1,821,912</td>
<td>698,390</td>
<td>396,505</td>
<td>301,885</td>
</tr>
<tr>
<td><strong>STUDENT ALLOWANCES&lt;sup&gt;f&lt;/sup&gt;</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>STUDENT FEES</strong></td>
<td>(31,920)</td>
<td>(31,920)</td>
<td>(31,920)</td>
<td>0</td>
</tr>
<tr>
<td><strong>NET COSTS</strong></td>
<td>1,789,992</td>
<td>666,470</td>
<td>364,585</td>
<td>301,885</td>
</tr>
<tr>
<td><strong>No. OF STUDENTS</strong></td>
<td>399</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL COST/STUDENT</strong></td>
<td>4,566</td>
<td>1,750</td>
<td>994</td>
<td>757</td>
</tr>
<tr>
<td><strong>NET COST/STUDENT</strong></td>
<td>4,486</td>
<td>1,670</td>
<td>914</td>
<td>757</td>
</tr>
<tr>
<td>In US Dollars</td>
<td>150</td>
<td>56</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td><strong>FULL-TIME EQUIVALENT</strong></td>
<td>232</td>
<td>86</td>
<td>47</td>
<td>39</td>
</tr>
</tbody>
</table>
To satisfy basic educational needs and to provide ‘education for all’ by the year 2000, countries throughout Asia, Africa and Latin America are seeking cost-effective ways to expand access to primary education and, at the same time, to improve the quality of existing schools. However, in many nations the provision of even minimally effective primary schools continues to be an elusive goal, one handicapped by high population growth rates, insufficient physical resources and a lack of qualified teachers. To redress the chronic undersupply of trained teachers, ministries of education assisted by a variety of international aid agencies are relying increasingly on distance-training schemes of one kind or another.

The government of Nepal’s ongoing efforts to train primary-school teachers at a distance are documented in this case study. Prior to the inauguration of the Radio Education Teacher Training Project (RETTP) in 1978, only 63 per cent of Nepal’s primary-school teachers possessed a School Leaving Certificate or SLC, the minimum formal qualification required by the Ministry of Education. Fewer still (only 39 per cent) were graduates of existing teacher-training programmes. Furthermore, conventional teacher-training programmes were hampered by the lack of qualified candidates in many areas, inadequate incentive structures, severe manpower and logistical shortages, high drop-out rates and the problem of replacing rural teachers while they attended residential courses.

To combat what once seemed an intractable set of educational problems, Nepal’s Ministry of Education and Culture has developed over the past twelve years a multifaceted distance-learning system. Radio broadcasts designed especially for untrained primary-school teachers, supplemented by a variety of other instructional media, are at the heart of this system. In fact, to date no other distance-teacher-training system has relied so heavily on radio as its core medium of instruction. Accordingly, the ways radio has been used for teacher training in Nepal, including the selection and recruitment of participants, the balancing of diverse instructional methods, the level of effectiveness, and costs, are the subject of this chapter.
EDUCATION IN NEPAL BEFORE AND AFTER 1951: AN OVERVIEW

Nepal’s quest for development began in 1951 when the House of Gorkha wrested power from the autarchical Rana family, which had ruled the nation for more than 100 years. Prior to the revolution, this landlocked country, so nearly closed off from the rest of the world by the Himalayan mountains, was thoroughly isolated. Foreigners were denied entry without special permission—a privilege granted only to the British government’s resident representative and a small number of other individuals. Neither were the Nepalese themselves allowed to travel freely.1 Internal travel required a passport from the central government. People were forbidden to own radios, and the only domestic mass medium was a small, government-owned newspaper.

Alongside India, a country whose educational system experienced rapid development under British rule, Nepal spent 100 years in educational (as well as social, political and economic) deprivation. Despite tentative attempts at reform and modernisation by one or two of the more enlightened Rana prime ministers, particularly in the second decade of this century, and the opening of a greater number of schools in different towns in the later years of the regime, until 1951 education remained essentially an underground commodity for all but the élite. There was one college, fewer than two dozen high schools, and altogether 321 primary schools in the entire country at that time. Only élite citizens were permitted to educate their children in any formal way. Those who were able to get their children out of the country, and could afford it, sent them to school in India.

The growth of the education sector in the second half of this century has been dramatic. In 1951 there were 8,505 students attending primary schools in Nepal—by 1976 the number of primary schools exceeded that figure. Of the 8,505 students enrolled in 1951, only 86 were girls. The literacy rate, estimated to have been just two per cent in 1951, reached 17 per cent in 1976 and 34 per cent in 1988. Although the country is still not in a position to make education compulsory, it aspires to offer universal education by the year 2000.2 Given Nepal’s relatively weak economy, its scarce natural resources, its fragile ecology, and its rapidly growing population (which has increased from under nine million in 1951 to over 18 million today), the task of expanding educational opportunities is a formidable one.

Nepal’s education system consists often years of schooling (Grades 1–10), on completion of which students must pass the SLC. Since 1983, schools have been structured in a 5+2+3 system, that is, five years of primary school, two years of lower-secondary school, and three years of secondary school. Students passing the SLC may enrol in one of the campuses of Tribhuvan University, the national university of Nepal.

All students, whether in public or private schools, must complete the SLC requirements in order to be secondary-school graduates. Private schools offer
nursery and kindergarten classes which are not part of the government curriculum. Private schools represent four per cent of primary and lower-secondary schools, and six per cent of secondary schools. The percentages of students attending private schools at each level are four per cent, ten per cent and 23 per cent, respectively.

**Emergence of a national education system**

The New Education System Plan (NESP), introduced on a phase-by-phase basis in the early 1970s, was the first attempt to create a national education system, with uniform curricula, textbooks and regulations. The NESP set the following minimum requirements for primary-school teachers: passing the SLC national examination on completion of the tenth grade and completing a teacher-training course. By 1976, 58 per cent of Nepal’s primary-school teachers had completed their SLC (see Figure 6.1 ) while just 39 per cent had completed their teacher training (see Figure 6.2 ). Although this latter figure represented an increase of 21 per cent over the NESP’s first five years, by 1987 the portion of teachers with training had actually declined to 36 per cent.

The proportion of SLC-pass teachers in the teaching force increased to 80 per cent by 1987 (Figure 6.1), indicating that the government was much more successful at producing high-school graduates and recruiting them into the teaching profession than it was at providing them with training. In 1987, when Nepal’s primary-school teaching force exceeded 55,000, untrained teachers still outnumbered trained ones by two to one.

It was during the NESP’s expansion phase that a six-person team, sponsored by UNICEF, the United States Agency for International Development (USAID), and the British Council, undertook a feasibility study to determine the potential for using radio for developmental and educational purposes in Nepal. The major outcome of that study was the launching of the Radio Education Teacher Training Project in 1978.3

**Why radio education in Nepal?**

The feasibility study team found no pre-existing consensus within the government or among the donor agencies regarding how radio might best be used for development purposes. Nevertheless, it identified potential projects falling under different developmental sectors. These included using radio in support of village extension and for the training of *panchayat* (village council) leaders. Three educational initiatives were also proposed: a lower-secondary expansion project, a schools broadcasting project at the second-ary/vocational level, and a teacher-training programme. Although it had been the team’s task to explore a broad range of uses for radio in development, it was the NESP’s
Figure 6.1 Share of SLC-pass and under-SLC teachers, Nepalese primary schools, 1976–87
Figure 6.2 Portion of teaching force with training (SLC-pass, under-SLC and total)
prominence within the Ministry of Education and Culture’s (MOEC) agenda and the local USAID mission’s interest in educational radio which led both groups to embrace the teacher-training project.

As early as 1974, it was evident that some alternative to traditional, face-to-face methods of providing teacher training would have to be used if the targets set out in the NESP were to be met. Various forms of distance education were considered. Given Nepal’s rugged, mountainous terrain and the absence of a reliable transportation system, making delivery of printed materials highly problematic, it was proposed that radio carry a larger share of the instructional burden than was typically the case in other distance-education systems. Radio offered the best and cheapest means of reaching most of the country’s schoolteachers. It would also enable trainees to be linked directly with the best teacher educators in the country—a response to the concerns already voiced at that time that the quality of teacher education was declining as the numbers going through the system increased. To do so, however, Radio Nepal—the country’s only radio station—would have to increase its transmission capabilities and improve the quality of its broadcasts.

The project’s original goal was to train 5,000 teachers per year using a combination of radio broadcasts, brief residential sessions and programmed texts. The assumption was that such a package could deliver a teacher-training course at much lower cost than either the existing campus-based system or any of the other alternatives which had been explored. The team reasoned that within five years of full implementation of such a radio teacher-training programme, enough trained teachers could be provided to cover all of the country’s primary-school classes.

At the same time, the feasibility team cautioned its sponsors that:

If [the proposed teacher training programme] is to be successful, a major developmental effort will be required to insure that the curriculum is well conceived, the radio broadcasts instructive and enjoyable, the textbooks comprehensible and reinforcing, and the residence sessions well-organized and strongly motivating for the teachers.

(Mayo et al., 1975, p. 102)

The typical teacher

Before moving further, it may be helpful to describe the typical Nepalese primary-school teacher. The following sketch is based on survey data collected from two cohorts of Basic Teacher Training participants.

The typical teacher is a Brahman male under 30 years of age who lives at home with seven other people, and speaks Nepali (the national language and only medium of instruction in public schools) at home. He is a farmer as well as a teacher, spending about 20 hours a week on farm and household chores. He has no source of income other than his teaching salary and any income
which might be made from the farm. Household-related duties frequently make it difficult for him to be home in time to listen to early-evening broadcasts. Furthermore, the typical teacher spent 19 nights away from home in the last year, mostly on household- or school-related business.

There is less than a 50/50 chance that he owned a radio prior to receiving one from the project, and he must purchase batteries for the radio—for as much as five per cent of his salary—since there is no electricity in the village. (The only source of light at home is a simple oil lamp). He particularly enjoys listening to the news and educational programmes. It is likely that he does not have a private room where he can listen to the radio attentively with ease.

He has been teaching for nearly five years, and has taught in at least one other school prior to his present assignment. It takes him between 30 and 45 minutes to walk to school each day.

Typically the first member of his family to have passed the SLC examination, he began teaching because it was the only job opportunity available in his village (or even in his district), and due to his inability—financially or otherwise—to gain higher academic qualification. His teaching job is a temporary appointment.

He teaches 36 periods of class a week, out of a maximum possible 39. He teaches virtually all of the subjects offered in the primary school. He may well have to teach more than one class at a time during some periods. In addition to his teaching load, he has other school-related duties, either in administration or extra-curricular activities (Research Centre for Educational Innovation and Development, 1986a; Karmacharya and Khatri, 1989).

**HISTORY OF RETTP**

Agreement to undertake a radio education project along the lines indicated by the feasibility report was reached by the Nepalese government and USAID in 1977, and a five-year technical assistance contract was awarded in the following year to Southern Illinois University. The project was to develop an institution capable of producing and administering radio-based teacher-training programmes.

**Evolution of teacher-training priorities**

As mentioned above, the RETT Project was launched during the implementation of the NESP. The plan called for the phasing out of all unqualified teachers (that is, those with insufficient academic credentials) and the training of teachers at each level of the educational system. For primary teachers, completion of a ten-month, campus-based course became a prerequisite for the award of permanent teacher status (tenure), and the national university provided such training on all nine Institute of Education
campuses. However, by 1979 it became clear that the capacity to train all teachers did not exist. Under heavy pressure from the National Teachers Union, which was frustrated by the backlog of teachers awaiting training, the government dropped its training requirements in 1981. With the tenure incentive no longer in place, the numbers of SLC-pass teachers attending training programmes fell dramatically.

Under the NESP, it was anticipated that the great majority of new primary-school teachers would be ‘SLC-pass’, but it was not until 1986 that a downward trend in the numbers of under-SLC teachers was observed. In the meantime, under-SLC teachers—still representing 35 per cent of Nepal’s primary-school teaching force in 1980—of whom nearly two-thirds were untrained, were treated as ‘unwanted children’. The decision to adopt under-SLC teachers as the RETT target group was made with the assumption that once this cohort of 6,004 teachers was trained, the project could move on to other tasks. Although under-SLC teachers continued to be hired in succeeding years, the percentage of unqualified teachers did decrease gradually (see Figure 6.1).

Still, the demand for teachers continued to outpace the supply of high-school graduates, requiring that teachers without the requisite high-school diploma be hired and trained. Thus, contrary to expectations, the RETT Project’s original target group did not decrease rapidly in size. In fact, from 1980 to 1984, while the project was enrolling 5,600 teachers in its courses, the number of under-SLC teachers increased by over 4,000, and the number of untrained under-SLC teachers rose to nearly 8,700.

The choice of under-SLC teachers as RETT’s first target group—a choice not anticipated in the feasibility study report—was based on two assumptions: that few new teachers would be added to this group, enabling the entire cohort to be trained within a few years; and that such a delimited undertaking would serve as the breaking-in phase for a radio-based, distance-training system whose mandate then could be expanded in directions and on a scale envisioned in the original project design.

In retrospect, the decision to concentrate on under-SLC teachers contributed to the project’s early difficulties. Teacher training was a task which had proved difficult in Nepal for even the best-educated teachers. RETTTP was assigned a target group of teachers who were unqualified for their jobs. Many had less than an eighth-grade education. In this endeavour, the project received little support or encouragement. That it was unable to accomplish much should not have been surprising; what should be surprising is that it survived at all.

In 1985, the trend of hiring new under-SLC teachers turned noticeably downward (see Figure 6.1); and by 1987 fewer than 20 per cent of Nepal’s primary teachers were unqualified. At this point, and as part of Nepal’s Basic Needs for All by 2000 campaign, the teacher-training curriculum was redefined. Instead of a single, ten-month in-service course, a four-step in-service programme was proposed. The first step, entitled Basic Teacher
Training (BTT), comprised 150 hours of instruction in both pedagogy and course content. Ministry officials saw this as a locally conceived and relevant approach to the challenge of providing teacher training. All available resources were mobilised in the effort to meet the goal of providing basic training to the projected 80,000 primary teachers by the year 2000. In 1988, under direction from the MOEC, five agencies initiated independent, parallel BTT programmes, all with equivalent certification. The five agencies were: the MOEC’s Regional Education Directorates; the Faculty of Education, Tribhuvan University; and three donor-assisted projects—the Seti Zone Project (UNDP/UNESCO/UNICEF), the Primary Education Project (World Bank/UNDP), and the Radio Education Teacher Training Project (USAID).

The RETT Project was informed in July 1987 that it would henceforth conduct no programmes for under-SLC teachers, but would begin immediately to design, produce and implement a 150-hour Basic Teacher Training course for SLC-pass teachers. For the first time, the project received a mandate which was consistent with overall national policy. There is no question that the functioning of the project improved following the shift in emphasis to qualified, SLC-pass teachers. The frustrations experienced by project staff were over; RETTP had become an important piece of a coherent national education policy.

**RETTP, 1978–1990: two projects, two target groups, three programmes**

During the twelve-year period in which USAID supported radio teacher training in Nepal, three courses were developed for two target groups. For under-SLC teachers, RETTP conducted five sessions of its under-SLC teacher-training course, generally known simply as RETT, and two years of its Radio Tuition English Programme (designed to increase teachers’ knowledge of subject content) between 1978 and 1988. Beginning in 1988, with SLC-pass teachers as the new target group, RETT’s version of the 150-hour Basic Teacher Training course was introduced. It is expected to run annually until at least 1998. The schema is shown in Table 6.1, and data for teacher participation and completion for each course are given in Tables 6.2 to 6.4.

**RETTP under-SLC teacher-training course**

This course was open to all untrained, under-SLC teachers. It ran parallel to the conventional ten-month training programmes offered on campuses and emphasised pedagogy of all subjects taught in Grades 1 to 3, with a secondary emphasis on course content. The subjects were: Nepali, mathematics, health, social studies, art and physical education. In addition, education and rural development were included, the former to introduce teachers to the
foundations of education, and the latter to inculcate attitudes and behaviour consistent with the model of teachers as change agents.

Evaluation of the course at the end of its first phase indicated that teachers had increased their knowledge of course content, but that this had had little or no effect on attitudes or behaviour in the classroom (Butterworth et al., 1983). The evaluation team recommended shifting the programme’s focus from

Table 6.1 Radio Education Teacher Training Project: two projects, three programmes, two target groups

<table>
<thead>
<tr>
<th>Year</th>
<th>Donor-assisted project</th>
<th>Target group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Under-SLC teachers</td>
</tr>
<tr>
<td>1978</td>
<td>RETT I USAID five-year project</td>
<td>(1)</td>
</tr>
<tr>
<td>1979</td>
<td>RETT under-SLC teacher training course</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>RETT II USAID five-year project extended to six</td>
<td>(2) Radio tuition</td>
</tr>
<tr>
<td>1981</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td></td>
<td></td>
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<tr>
<td>1983</td>
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<td></td>
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<td>1984</td>
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<td>1987</td>
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<td>1988</td>
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<td>1989</td>
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<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
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</tbody>
</table>
teaching methodology to teaching content, thereby raising the subject-matter knowledge level of the under-SLC teachers, which was judged to be quite weak.

The RETT course for under-SLC teachers continued until the MOEC declared once and for all that no further training would be offered to under-SLC teachers. The fourth and final examination for RETT participants was held in June 1988. Altogether 6,429 teachers, representing all but three of the country’s 75 districts, were enrolled in six sessions of the programme. Of these, 5,371 (84 per cent) completed the course and 3,478 (54 per cent) passed and received certification, thereby qualifying them for the Rs 65 (about $30,
or nine per cent of the average teacher salary) per month training allowance. Demand for the course dropped off noticeably in the last two years of its operation. Education officers in many areas requested that their districts not be included, since they were in the process of substituting many of the under-SLC teachers with better qualified recruits. The final RETT session included teachers from just 35 districts, down from the 1982 peak of 69.

Radio tuition programme

On the recommendations of the RETT I final report, RETT II was developed as an instructional programme for primary teachers. It covered the high-school curricula in mathematics, English, Nepali and science with the dual objective of raising the under-SLC teachers’ knowledge of these subjects, while at the same time helping them to prepare for the SLC examination. For various reasons, only English lessons were ever produced.

The cohort of under-SLC teachers exhibited an extremely wide range of educational backgrounds and subject knowledge. Many of them had studied under the previous school curriculum for which the SLC exam was no longer being offered and, as a result, few of them had much chance of ever passing the exam. Add to this handicap the tenuous position they held in the school system—some were actually dismissed while they were enrolled on the course due to their lack of academic qualifications—and it was not surprising that, in the words of the RETT II final evaluation team:

the purpose of improving the knowledge and skills of under-SLC primary school teachers to levels that would permit them to pass the

Table 6.4 Number of teachers enrolled, completing and passing BTT course for SLC-pass primary-school teachers, 1987–90

<table>
<thead>
<tr>
<th>Year</th>
<th>No. teachers enrolled</th>
<th>No. completing course</th>
<th>No. passing exam</th>
<th>Cumulative % of enrollees who passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987–88</td>
<td>987</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988–89</td>
<td>598</td>
<td>1,267</td>
<td>1,079</td>
<td>68.1</td>
</tr>
<tr>
<td>1989–90</td>
<td>1,789</td>
<td>1,547</td>
<td>829</td>
<td>56.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,374</td>
<td>2,814</td>
<td>1,908</td>
<td>56.6</td>
</tr>
</tbody>
</table>

Notes
a. Completing the course is defined as enrolling in the course and appearing for the final exam,
b. This is the total number of enrollees (including those who repeated the exam) who passed,
c. This is the cumulative percentage of all teachers who have ever enrolled in the course who have passed,
d. 1987–88 and 1988–89 sessions were run concurrently after repeating the first 40 lessons; the examination was held jointly; 1,267 out of the total 1,585 enrollees took the exam.
SCL examination through radio-based in-service education proved to be unachievable.

(Anzalone and Mathema, 1989, p. i)

English competency was another major problem faced by the project. Although English is a required subject in Nepalese schools from Grades 4 to 10, it is the subject most often failed by students who sit for the SCL. English competency levels among under-SLC teachers (14,000 in 1986) were so wide that it proved impossible to produce one 60-hour course package which could meet the needs of all students (Holmes et al., 1986).

RETTP developed a reasonably good English by radio instructional package, but where were the teachers who could benefit? Prior to the second session of the course, an entrance test was administered to students who presumably had the requisite knowledge-base to benefit from the course. Of 658 promising applicants (out of approximately 2,600 under-SLC teachers from ten districts) only 100 were able to score 40 per cent or better on the test. Eventually the entrance standard was lowered to 32 per cent, enabling 319 teachers to participate. However, this number represented only twelve per cent of the under-SLC population in the ten districts. In other words, the radio project catered for only 12 per cent of a group of unqualified teachers, most of whom had little hope of ever passing the SLC exam. In short, there was insufficient motivation, financial or otherwise, for teachers to enrol or complete the programme. Eventually 473 teachers from ten districts did enrol in one of the course’s two sessions. Of this group, 369 (78 per cent) took the post-test.9

Despite the poor match between the project’s goals and target group, it was widely recognised that RETTP made great strides in its ‘capacity to design, implement, and evaluate radio education activities’ (Anzalone and Mathema, 1989). That the MOEC, too, recognised this is evident from the fact that, mid-way through RETT II, the project was called upon to drop all of its under-SLC programmes, and to develop its own version of the new BTT course for SLC-pass teachers.

BTT course

Some version of this course was required of all 27,000 untrained teachers who lacked permanent status in 1987. It was further estimated that the number of SCL-pass teachers requiring training would be 80,000 by the end of the century. The BTT radio course had much in common with the earlier RETT course for under-SLC teachers. It included instruction in both teaching methodology and subject-matter content for all of the subjects introduced in the primary schools. In addition to Nepali, mathematics, social science and health—the four major subjects of the RETT curriculum—English and science were added, reflecting the fact that primary schools now contained
fourth and fifth grades, in which these subjects were taught. Education was retained as a subject in this course, too, although the rural development curriculum was dropped. Minor subjects (Sanskrit, art, physical education, moral education) were also included, but with only two lessons devoted to each.

EVOLUTION OF A DISTANCE-TEACHING SYSTEM: COURSE COMPONENTS

Although the three teacher-training courses produced by the RETT Project varied in terms of purpose and target audiences, there emerged over time a balanced set of course components whose development reflected programme resources and constraints. The priorities in each instance were to maximise learning and to minimise the participants’ feeling of isolation within a reasonable timeframe and budget. Major constraints included the availability of listeners and air time; travel costs and the difficulty of fielding staff and supervisors for long periods; and the conflict between production deadlines and the timing of formative evaluation activities.

Over the course of twelve years, the RETT Project matured as an institution. With the benefit of experience, project leaders were able to convince MOEC officials that certain components—face-to-face sessions, for example—were necessary for the success of the programmes and therefore warranted increased investment. In this section, we will describe the eight course components of RETTP’s BTT programme—radio distribution, radio lessons, print materials, contact sessions, supervision, evaluation, admissions and examinations—and give a brief explanation of their historical development within the Nepalese context.

Radio distribution

Estimates vary concerning the percentage of Nepalese families owning radios, from a low of about six per cent among the general population in 1973, to a high of 41 per cent among teachers’ families in 1988. Despite the inference that radio ownership has increased substantially, approximately 60 per cent of Nepal’s primary-school teachers still did not have access to a radio in their home as of 1988. Attempts to deliver radio-based instructional packages in Nepal have therefore involved some provision for making radios available to the participants.

In RETT I, radios were consigned to District Education Officers (DEOs) and loaned to participating teachers for the nine-month course. This arrangement was never satisfactory, and the condition of the radios deteriorated quickly, such that by the end of that phase few radios were found to be in working condition.
Throughout the RETT II phase, radios were sold to teachers on an instalment basis. Teachers assumed responsibility for maintaining their radios and for providing batteries. Since USAID was able to import receivers free of duty and excise taxes (together, normally about 50 per cent of the original value), participating teachers received a valued item at a bargain price. So much so, in fact, that some officials suspected that teachers would be inclined to enrol in courses solely for the purpose of obtaining a radio. Given the low drop-out rates and other evidence gathered by the project, however, there was no evidence to substantiate such a fear.11

The logistics of ordering large numbers of radios, delivering them to district offices and then selling them to enrolled teachers on an instalment basis constituted a significant administrative burden for RETTP personnel as well as the DEOs. Despite these difficulties, the arrangement was successful in providing teachers with the main course instrument, a radio. Until such time that the majority of Nepalese teachers can afford to purchase their own radios in the marketplace, radio distribution will continue to be an important aspect of the system.

Radio lessons

The BTT programme’s radio lessons followed the design set out at the beginning of the project and adhered to ever since: two formal lessons divided by a non-formal magazine segment. (In BTT, each lesson lasted 12 minutes and the Magazine Show lasted six minutes, whereas in RETT each of the lessons, as well as the magazine segment, were 20 minutes long). Providing a break between two instructional segments proved to be a popular idea, and the Magazine Show, which explored a wide range of topics, ranging from women’s legal issues to a popular serial drama based on village politics and development issues, contributed significantly to the popularity of the series with teachers. In addition, the Magazine Show offered the Teacher’s Corner, which served as both a question-and-answer session and a forum for reading and responding to teachers’ letters.

BTT was broadcast for just 30 minutes each day whereas RETT consumed a full hour. RETT programmes were broadcast on a single short-wave frequency, while Radio Nepal’s regular programming continued on all other bands (thus allowing the project some freedom in choosing the broadcast time), whereas the BTT programmes were broadcast simultaneously on all of the station’s frequencies. This meant that the project had to compete with other development agencies in the country for prime-time slots, and Radio Nepal was unable to allocate more than a half hour of air time per day to the programme.12 This resulted in a BTT course of nine months’ duration (240 broadcast days).

Radio Tuition was by nature, of course, quite a different kind of programme from either the RETT or BTT courses. Its instructional design was based
primarily on an interactive radio methodology involving sequences of modelling statements or questions. Listeners responded with written or oral answers. The pilot year’s experimentation with a 20-minute programme on short-wave proved to be disastrous on both counts. More instruction time was required, and the reception quality had to be excellent if the learners were to understand the broadcasts. The lessons were thus lengthened to 30 minutes and broadcast on medium- as well as short-wave bands. (See Table 6.5).

The RETT Project has its own radio production staff—two producers and two studio technicians, when at full strength—and records all of the programmes using its own studio facilities. Tapes are delivered to Radio Nepal each day, for broadcast that same evening. The tapes are picked up the following day and returned to the project offices.

**Print materials**

BTT provides teachers with a set of four self-instructional books (known locally as self-instructional materials, or SIMs) containing 480 lessons. Each lesson corresponds to one radio lesson. Although the SIMs vary in format depending on the subject, they generally contain summaries of each lesson along with ‘questions for thought’ and a number of self-test items. The series of SIMs developed for the RETT were more elaborately illustrated than those for BTT. However, this proved too expensive to maintain in the long run.

**Table 6.5 Daily and session broadcast schedules**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total broadcast days</td>
<td>159</td>
<td>117</td>
<td>240</td>
</tr>
<tr>
<td>Total broadcast hours</td>
<td>159</td>
<td>58.5</td>
<td>120</td>
</tr>
<tr>
<td>Total no. lessons</td>
<td>318</td>
<td>117</td>
<td>480</td>
</tr>
<tr>
<td>Minutes per lesson</td>
<td>20</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Total formal hours</td>
<td>106</td>
<td>58.5</td>
<td>96</td>
</tr>
<tr>
<td>Magazine show (mins/day)</td>
<td>20</td>
<td>–</td>
<td>6</td>
</tr>
<tr>
<td>Total magazine hours</td>
<td>53</td>
<td>–</td>
<td>24</td>
</tr>
<tr>
<td>No. lessons per programme</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Daily programme length (mins)</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Broadcast time slot</td>
<td>5.30–6.30 a.m.</td>
<td>8.15–8.45 p.m.</td>
<td>5.30–6.00 p.m.</td>
</tr>
<tr>
<td>No. broadcast frequencies</td>
<td>1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>all bands&lt;sup&gt;b&lt;/sup&gt;</td>
<td>all bands&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Notes**

a. RETT was broadcast on one short-wave frequency, usually the 60-metre band, while regular programming continued on Radio Nepal’s other frequencies.
b. Radio Tuition was broadcast (in its second year) during prime time on all meter bands: two medium-wave stations and both short-wave frequencies (60 and 90m or 60 and 41m depending on the season).
c. BTT is broadcast on all meter bands in the 5.30–6.00 p.m. time slot.
Since the Radio Tuition broadcasts were based on existing English textbooks for Grades 7 to 10, the latter were distributed to participants, along with a small dictionary. However, plans for supplementary workbooks (which were adopted in response to feedback from teachers) were not implemented before the Radio Tuition course was discontinued.

Contact sessions

In addition to the radio lessons and SIMS, the BTT offers a half-day teachers’ orientation, a 30-hour face-to-face practical session, and a system of monthly ‘resource teacher sessions’ for the participants. Such contacts are a vital and necessary component of the RETT distance-education system.

The original RETT design called for a two-week orientation workshop, followed by bimonthly two-day workshops throughout the broadcast year, and a larger residence session leading up to the final examination. Except for the pilot year of 1980–81, which itself ran only four of the scheduled eight months, the contact sessions were dropped from the RETT course for under-SLC teachers. Prohibitive costs were cited, but the RETT I final evaluation report provided an additional reason:

While the workshop concept may be essential to the success of the programme, there is the question of the feasibility of providing the trained manpower to run these workshops in nearly all the districts of the country. To be effective, workshop leaders should be able to demonstrate the different techniques presented in the programme, critique teachers in practice sessions, and lead discussions to clarify information presented in the radio broadcasts and SIMs.

(Butterworth et al., 1983, p. 18)

For a variety of reasons, project administrators were unable to mount the logistical effort required to run contact sessions in more than a few districts. As a project not formally attached to Nepal’s educational system, RETTP had few human resources of its own to draw on, and no mechanism for mobilising other resources within the ministry.

The absence of face-to-face contact with teachers was the most frequently cited shortcoming of the original RETT course. Furthermore, the contradictory nature of the course itself—the fact that MOEC leaders were determined to replace under-SLC teachers—allowed the programme to run without a face-to-face component.

Sessions of two to four days’ duration were introduced as part of the Radio Tuition course in 1986, and teacher feedback was uniformly positive. The more personal contact the better, as far as the teachers were concerned. This course ran in only a limited number of districts, of course, and never incorporated more than 289 teachers at a time. Also, Radio Tuition’s face-to-
face sessions were conducted by one to three RETTP staff and at such a small level of commitment the programme was feasible.

When the MOEC instructed the RETT Project to develop a new course within the guidelines of the BTT 150-hour framework, project leaders restated their case for mandatory face-to-face contact sessions. Subsequently, it was agreed that the 150-hour course would be divided into 120 hours of radio instruction and 30 hours (requiring five days) of face-to-face practical sessions. Implicitly, the MOEC committed itself to providing necessary funding and manpower. In addition to the 30-hour practical sessions, there were also to be one-day orientation sessions in each district.

A resource teacher system was also proposed as part of the BTT course. It was based on work of the Primary Education Project (PEP) and the Seti Zone (or Education for Rural Development, Seti Zone) Project which the government had launched in the mid-1980s. Both projects employed a system of satellite schools in order to decentralise supervision and face-to-face training procedures in a country where distances are generally measured in ‘days walking’. Secondary teachers at resource schools received training in conducting one-day sessions for headmasters and teachers from surrounding primary schools. The resource schools were rewarded for their extra efforts with some budgetary support.

The BTT course was organised in an innovative way. Rather than scattering itself across the country, enrolling thousands of isolated teachers, a ‘saturation strategy’ was employed. All eligible (that is, SLC-pass, untrained) teachers in a given region were invited to enrol in the course in a given year. The idea was to exhaust all of the target group in a limited geographic area at one time, and then to move on to another region. When the first set of districts had hired enough new, untrained teachers, the course could be repeated in those same districts, but not more than once every three or four years.

The purpose behind the satellite school strategy was to build up a critical mass of teachers in all of the areas in which the course was being run, thereby enabling ‘cluster groups’ to be organised which could meet on a regular basis—typically one Saturday every month—under the guidance of resource teachers (RTs). Teachers were assigned to groups so that they could travel to and from the sessions without having to spend nights away from home.

RETTP proposed a payment of Rs 150 per session (approximately $6—about seven hours’ pay for the average high-school teacher) to the resource teachers. Approval of the payment scheme was delayed so this component of the project was not fully implemented until the 1989–90 session of BTT. RTs were encouraged to enlist other teachers to instruct especially difficult subjects, notably English and science.

The Nepalese government originally intended that RETTP would serve the more remote districts of the country, those without access to an education campus. In the end, however, a very different format proved to be more practical. It proved easier to get teams13 of four or five teacher-trainers out to the more remote regions to conduct 25-day training sessions than it did to set
up multifaceted distance-teaching courses for the same areas. In sum, the radio-based BTT system, with monthly cluster-group sessions with RTs and end-of-session 30-hour practical sessions, has created the means of providing training at a distance to virtually all of a district’s untrained teacher population in just one nine-month session. Given that the average number of untrained, SLC-pass teachers is about 325 per district (1988), and that the MOEC-administered face-to-face, 28–32-day sessions generally accommodate 40–60 teachers, it is obvious that the RETTP BTT course package has the potential to make an important contribution to the MOEC’s campaign to train 80,000 primary teachers by the year 2000—even if the focus is in the more accessible rather than the remoter districts of the country.14

Practical sessions were planned to bring together about 150 participants with four trainers for a five-day residential session. They encouraged hands-on work in the design, construction and use of simple, locally available teaching materials, along with modelling of different teaching techniques. For most activities, the participants divided into three sections, so that they worked with trainers in classes of 50. The fourth trainer (generally the site co-ordinator) concentrated on the managerial aspects of the sessions. It was not feasible to arrange for practice teaching time, given the numbers of teachers involved and the short duration of the sessions. However, microteaching allowed teachers to work in teams preparing lessons and teaching to a ‘class’ of their peers.15

Supervision

In the BTT course, district supervisors assist in the recruitment and enrolment of teachers, radio distribution and orientation, and running of the practical session and exam. They also monitor the RTs and conduct of the monthly contact sessions. This arrangement is more realistic than were earlier attempts to utilise district supervisors in the day-to-day supervision and guidance of participating teachers. One problem plaguing all projects in Nepal’s education sector is that district supervisors are typically few in number (as few as three or four in many districts) and are generally burdened with administrative duties. Furthermore, getting around in Nepal is not easy and the DEOs do not have adequate budgets to fund frequent field trips. Supervisors customarily are expected to oversee many projects within a given district16 so there is no guarantee of getting their focused attention. The lack of success in incorporating DEOs into the RETTP system was the primary reason behind the development of the RT and cluster-group systems. The fact that the RTs are fellow teachers and are much more accessible to the course participants than are supervisors, are important reasons why the RT system is a preferable arrangement. The DEOs and supervisors continue to play an important role in the system—but relieving them of the role of providing the link between the central office and the teacher
at their home or school has enhanced the BTT programme and contributed to its sustainability.

**Evaluation**

The role of formative evaluation in the development of innovative educational programmes is frequently emphasised, particularly ones as complex as Nepal’s Radio Education Teacher Training Project. Although rigorous formative evaluation of the script-writing/production/evaluation cycle was a feature of the RETT I project design, it was discontinued before most radio lessons or SIMs had been completed. This shortcoming was cited in the project’s final evaluation as one of the major reasons for its evident ineffectiveness (Butterworth *et al.*, 1983). In response, a considerable portion—roughly 11 per cent—of RETT II’s budget was earmarked for research and evaluation activities (Agency for International Development/ Nepal, 1984). Major efforts were also made within the Radio Tuition Programme to improve materials through field trials.

Ironically, it proved unfeasible to duplicate an evaluation programme of comparable breadth and intensity once the BTT cycle began. Project staff were given only six months to get an entirely new programme of 240 lessons covering seven major subjects on the air. There simply was not enough time for formative evaluation of the radio lessons. Furthermore, the script-writing staff were kept too busy producing SIMs to allow them to get to the field with any frequency. Nevertheless, field trips were made for the purpose of on-the-spot observations. On the basis of such visits, some adjustments were made in the SIMs and some lessons were revised prior to the second year of broadcasts.

RETTP’s formative evaluation programme consisted essentially of two components: regular, weekly observations of teachers working with the recorded lessons at project headquarters; and on-the-spot visits to the homes of participating teachers to gauge how they received the broadcasts. For the former, groups of teachers from nearby (but rural) schools were organised for weekly listening groups for both the Radio Tuition and the BTT series. They made regular visits to the project office to listen to new lessons. Scriptwriters and producers assessed how the teachers were reacting to the radio characters, actors’ voices, speed and style of the language used, and so on. Pre- and post-tests measured how much learning occurred.

Although the weekly observation group was an essential component of the evaluation plan, it could not substitute for actually observing teachers as they listened and responded to radio lessons in their homes. To fulfil this need, a programme of field trips was initiated. It involved transporting scriptwriters and evaluators to the teachers’ houses for on-the-spot observations. Findings from these trips illuminated the problems teachers encountered during the first year of Radio Tuition broadcasts—problems with reception, actors’ voices, and the teaching methodology employed in the lessons. Such
observations led to a major overhaul of programme design and helped to convince MOEC officials of the need to hire more experienced radio actors.

Negotiations were also undertaken with Radio Nepal for the use of medium-wave as well as short-wave bands, and for a broadcast slot more convenient for teachers. In the case of Radio Tuition, despite the problems of the basic mismatch between the level of the school curriculum on the one hand and target group on the other, the rigour and comprehensiveness of the evaluation component enabled the project to produce a series of programmes of professional quality in the second year.

For the purposes of summative evaluation, tests were developed and administered to one-third of the teachers in the BTT’s second session, and to all teachers enrolled in the Radio Tuition course. Such tests measured teachers’ achievement gains in the different content areas. Results are discussed later in this chapter. Unfortunately, no testing programme was initiated during any of the RETT sessions for under-SLC teachers.

**Admissions**

As explained above, the BTT course is administered in a limited number of districts each year, and is open to all the eligible teachers in those districts. This practice varies with those established during previous RETTP programmes and the tradition of Nepal’s teacher-training programmes in general. Formerly, districts were assigned a fixed quota for each session, which served as a ceiling figure for teacher enrolments. Admissions procedures are still established by the project and then communicated to the DEOs who are responsible for recruiting and enrolling teachers locally. In cases where there is a limited enrolment quota, most DEOs report that they select teachers for training on the basis of seniority.

Informing and registering teachers for training are not easy tasks. Communications are poor under the best of conditions in Nepal. DEOs do not have sufficient budgets to enable them to mail circulars to all schools on a regular basis. Letters are carried almost exclusively by hand. The situation is further complicated by the government calendar. The inclusion of districts in the coming year’s programme requires approval by the MOEC, and this generally comes as part of the annual workplan and budget approval process which culminates in June. Since RETTP broadcast years generally begin in August, there is never more than two months’ advance notice of training opportunities. A partial solution to these problems has been to rely on paid advertisements on Radio Nepal to make announcements regarding upcoming courses and enrolment procedures.

**Examinations**

Examinations conducted by the RETT Project are consistent with patterns established in Nepal. A RETT Examination Board has been established within
the MOEC which is responsible for policies as well as for assigning persons to prepare examination questions. Test items generally are of two types: fill-in-the-blank questions requiring one-word or short-phrase answers; and questions requiring short essay responses. Test items are usually composed by subject experts using the course curriculum. No attempt is made to check test items for validity or reliability. The final selection of questions and exam format rests with the Exam Board.

The grading of the exams is also done by subject experts assigned by the Exam Board, some of whom work at the RETT Project and some of whom do not. The process is overseen by an examination chief to ensure secrecy. Teachers must obtain a mark of 50 per cent or better on all tests (same as the university standard) in order to pass the exam and gain certification. Individual results are announced after the Board has approved the entire process and its results.

RETTP examinations (both for BTT and earlier for RETT) fit wholly within the patterns established for the SLC. Given this tradition, it is difficult to use the examination results for any other evaluation purposes. For example, there is no way of verifying what the exams are actually testing or whether or not they are discriminating accurately among teachers in terms of specific learning outcomes.

**COMPARISON OF RADIO-BASED AND FACE-TO-FACE BTT COURSES: COMPONENTS, IMPACTS AND COSTS**

From this point in the case study, we will focus on the BTT course, its main components, management, completion and pass rates, learning gains and costs. In most respects, the BTT represents the cumulative development of radio education in Nepal and, specifically, its capacity for teacher training. It is thus an expression of what the project as an institution has learned in more than a decade of experience. As one of five parallel courses, BTT also offers an invaluable opportunity for comparison with more traditional, face-to-face teacher-training methods. In some cases, general comparisons are possible; in others, and particularly those incorporating cost data, comparisons between the radio-based training programme and the alternative version of the programme being conducted by the MOEC’s Regional Education Directorates (REDs) and District Education Offices are most appropriate.

**Radio-based BTT course**

The radio-based course administered by the RETT Project consists of the nominal 150 hours of instruction which is broken down into 120 hours of radio lessons and a 30-hour practical session. The radio lessons are half an hour long, and are broadcast six days a week for approximately nine months.
Broadcast time is in the evening, after teachers have reached home. Each half-hour lesson consists of two, 12-minute formal lessons and a 1-minute Magazine Show which is a forum for teachers’ questions and comments, as well as items of topical interest. Altogether, 480 radio lessons and 240 broadcasts have been produced. Mathematics and Nepali each have 100 lessons; English 80; science, health and social studies 50 each; and education 40. The remaining ten lessons cover four other subjects taught at the primary level (art, physical education, Sanskrit and moral education) as well as two final review lessons.

The character of the lessons varies significantly across subjects. The theoretical aspects of pedagogy are covered in the 40 education lessons, which use a discussion format, including two teachers. Maths lessons often include interactive games, riddles or other activities where the listeners are asked to respond by solving the problems. Health lessons typically use dramatic dialogue between the mentor (health worker), learner (school teacher) and other villagers to clarify health concepts and explain how best to teach them. All of the subjects employ classroom simulation segments in some lessons, whereby different techniques (such as leading class discussion, using answers to provide positive feedback to students, conducting language drills, and so on) are modelled.

Practical sessions are held towards the end of the broadcast cycle and last for five days each. Up to 150 teachers are brought to a site within their district for 30 hours of instruction, materials construction and peer teaching.

The intent of course planners to include practice teaching as part of the practical session proved to be impossible to implement. It was not feasible to schedule monitored teaching time for each of up to 150 teachers within the available time. It was decided, instead, to conduct peer teaching sessions, where the trainers work in teams, teaching to and receiving feedback from their peers. The bulk of the time is given to presentations by the trainers and preparation of materials by the trainers.

During orientation and prior to the initial broadcast, teachers are provided with a set of SIMs comprised of one- to two-page units corresponding to each of the 480 radio lessons. Teachers are also given the opportunity to purchase a three-band transistor radio (short-wave being necessary to receive Radio Nepal in many parts of the country) at a cost considerably below the market price, with the option of paying on an instalment basis.

In addition to this basic structure, the project also includes a supporting resource teacher system as part of the course package. It provides participants with the opportunity to meet once a month with fellow trainees (30–40 in each cluster) and one or more resource teachers (high-school subject teachers) to discuss and clarify issues related to training. Financial support is channelled through the DEOs to facilitate monitoring of the system by supervisors. The project solicits direct feedback from the enrolled teachers by means of pre-printed, stamped aerogramme questionnaires.
which are distributed to the teachers at the beginning of the programme, and which are expected to be returned on a monthly basis.

A final exam is conducted (at the same centres where practical sessions are held) at the end of each course. There are two three-hour parts of the exam, administered on consecutive days. Teachers must pass all of seven subjects (mathematics, Nepali, English, science, social studies, health and education) with at least 50 per cent marks in order to pass the course.

In addition to the 150 hours of formal instruction (120 hours of radio lessons and 30 hours’ practical session) teachers meet with resource teachers for a total of 24 hours (generally three-hour Saturday sessions once a month for eight months), four hours of orientation prior to the start of broadcasts, and eight hours of exams. Add to that two hours for filling out the eight aerogramme questionnaires, and a minimum of 80 hours for studying the 480 SIMs lessons (at ten minutes per lesson), and it can be estimated that there are actually up to 215 hours of contact between the enrolled teacher and the course package, plus the 29 hours of the non-formal Magazine Show.

**Face-to-face BTT course**

The face-to-face BTT courses are administered by the MOEC through its Teacher Training Unit and the Regional Education Directorates. They are typically held at high schools, university campuses, village training centres, and other convenient locations. They last for 28–32 days. Each day’s work is scheduled to last for five hours, exclusive of extra-curricular activities, giving a total of approximately 150 hours of instruction. The 150-hour course is entirely self-contained, from orientation through to the final examination, and is completed within a single month. However, the inclusion of a number of extra-curricular activities (physical education, music, and so on) in the course extends it well beyond the 150 hours of formal instruction.

The average session is attended by 50 teachers and is conducted by five trainers. The trainers are either supervisors or high-school teachers who are trained by teams of university teacher-educators in sessions lasting two or three weeks. The regional and district education offices are given the responsibility of administering the face-to-face training programmes, using local specialists, supervisors and teachers. Materials have been developed for each of the subject areas and these are distributed as handouts during the training sessions.

Unlike the radio-based BTT, wherein all trainees undertake the same curriculum, three different subject packages are offered by the face-to-face programme. The latter include 40 hours of instruction in education; the remaining 110 hours are comprised of (1) Nepali, health and social studies; (2) mathematics and science; or (3) English. A final exam covers all of the subjects dealt with during the training. Teachers must correctly answer 50 per cent of the questions to pass the exam and gain their basic teacher certification.
Beyond the original codification of the BTT curriculum as a 150-hour basic-level primary-school teacher training for SLC-pass teachers, and despite the MOEC’s active participation in the approval process for both BTT course programmes, significant differences have developed over time within the two approaches. RETTP has adhered to the 150-hour formula as the basis for its radio broadcast plus face-to-face practical session structure, but has added other features (such as the answer-back aerogrammes, the SIMs books, and the resource teacher sessions) to enhance its distance-education system. Experience gained on two previous radio teacher-training programmes suggested the need for ancillary channels for contacting teachers and maintaining their interest. The result was a course which grew to 215 hours of contact time, 244 hours if the 29 hours of non-formal Magazine Show programming are counted. By contrast, the face-to-face training is completed wholly within the allotted 150-hour framework. Hour estimates for both programmes are exclusive of extra-curricular activities, however.

The structure of the two courses is summarised in Table 6.6.

Table 6.6 Teacher time associated with course components of radio and face-to-face programmes (based on 1989–90 courses)

<table>
<thead>
<tr>
<th>Radio-based training</th>
<th>Face-to-face training</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. hours</td>
<td>Component</td>
</tr>
<tr>
<td>96 (29)</td>
<td>Radio contact, formal(^a)</td>
</tr>
<tr>
<td>2</td>
<td>Aerogrammes (8 aerogram’s × 15 min.)</td>
</tr>
<tr>
<td>80</td>
<td>SIMs (reading/studying)(^b)</td>
</tr>
<tr>
<td>24</td>
<td>Resource teacher sessions</td>
</tr>
<tr>
<td>4</td>
<td>Orientation session</td>
</tr>
<tr>
<td>30</td>
<td>Practical session(^c)</td>
</tr>
<tr>
<td>8</td>
<td>Final examination(^c)</td>
</tr>
</tbody>
</table>

215 hours contact time (plus 29 hours non-formal) 150 hours contact time

Plus Plus
- homework - homework
- extra-curricular activities - extra-curricular activities
(during practical session) (during entire session)

Notes
a. In seven subjects: education, mathematics, science, Nepali, health, English, social studies.
b. In one of three packages: Nepali/social studies/health; mathematics/science; English.
Teacher enrolments

If the Nepalese government expects to enrol 80,000 teachers in its in-service training courses during the 12 years of the Basic Needs for All campaign, approximately 6,667 teachers will have to be enrolled each year. In the first three years of the campaign a total of 13,742 teachers were enrolled for an average of 4,581 per year. The Regional Education Directorates enrolled the largest number of teachers (5,660), followed by the RETT Project (3,374), in the first three years. The Faculty of Education enrolled 2,526 teachers in its programmes while the PEP and Seti Zone projects had 1,688 and 494 teachers respectively in their courses (see Figure 6.3).

Completion and pass rates

The completion rate for the RETTP courses may be defined as the percentage of teachers enrolled in the course who actually sat for the final examination. Those who did not take the exam are considered drop-outs. The combined completion rate for three sessions of radio-based BTT was 83.4 per cent, leaving a drop-out rate of 16.6 per cent (see Figure 6.4). For the face-to-face courses, no data are available regarding the number of teachers who declined to attend the sessions or who dropped out prior to taking the final exam.

The pass rates for the radio-based BTT course and the face-to-face courses were markedly different (see Figure 6.3). Overall, during the three years of BTT, 56.6 per cent of those enrolled in the radio courses earned BTT certification, whereas 94.8 per cent of those enrolled in the four face-to-face versions did so. Annual pass rates for the radio courses were 68.1 per cent for the first two sessions and 46.3 per cent for the third. For the combined face-to-face courses, the annual figures were 100 per cent, 89.7 per cent and 98 per cent, respectively.

Pass rates for the four face-to-face courses were uniformly (and suspiciously) high. The combined, three-year pass rate of the four agencies was over 90 per cent. The lowest annual pass rate for any one agency was 82.6 per cent, recorded by the PEP project in 1988–89. Yet, that same agency passed 100 per cent of participating teachers in the course years immediately preceding and following 1988–89. As a result of differing pass rates, the RETT Project enrolled 32.5 per cent of all participating teachers, but its graduates represented only 16.3 per cent of those who eventually earned certification.

Whereas the face-to-face courses had a combined higher pass rate (98 per cent) in 1989–90 than in the previous year (90 per cent), the radio course’s pass rate dropped from 68 per cent to 46 per cent. Although it does not fully explain differing trends over the three-year period, RETTP’s record for 1989–90 must be considered in light of the dramatic, revolutionary political developments which took place in that year. The democratic movement which
Figure 6.3 Number of teachers enrolled and passed: BTT courses run by five agencies, 1987–90
ended Nepal’s absolute monarchy in April 1990 severely disrupted everyday life through much of that year. Given the political situation, there may have been pressures to pass all teachers attending face-to-face sessions, so as not to alienate them. Why the percentage of teachers passing the radio course should have decreased rather than increased during the same period is not obvious. Daily listening patterns undoubtedly were affected by the political turmoil. The practical sessions were truncated due to budget cuts, and the training-of-trainers sessions were cancelled altogether.

Why were the pass rates of teachers enrolled in face-to-face training courses so much higher than those enrolled in radio-based courses? One or more of the following factors may explain the discrepancy.

Logistical problems and competing personal demands handicapped radio course students. Although the BTT course was nominally radio-based, data from teacher surveys and letters revealed that teachers actually relied more on the written SIMs. Delays in the distribution of SIMs in each year of the project undoubtedly reduced many teachers’ ability to keep up with the pace of instruction set by the radio lessons. Furthermore, the 5.30–6.00 p.m. broadcast slot for the radio lessons apparently conflicted with many teachers’ home and family commitments.

The radio-based teacher-training courses were more demanding than their face-to-face equivalents. Teachers enrolled in the BTT radio course received instruction and were examined in seven subjects, whereas their counterparts in the face-to-face course received specialised instruction in no more than four subjects at a time. Similarly, teachers attending the one-month, residential sessions benefited disproportionately from the latter’s intensity and level of personal attention.

Notes
1 Teachers passing: teachers who achieved passing marks in all subjects on either first or subsequent attempts.
2 Drop-outs: teachers who enrolled in the course but did not sit for the final exam—all others are considered to have completed the course.
3 Teachers failing: teachers who took the final exam but failed (on first and any subsequent attempts) to achieve passing marks in all subjects.

Figure 6.4 RETTP’s BTT course: pass, fail and drop-out rates, 1987–90
BTT course participants were less motivated than their counterparts who received face-to-face instruction. The nine-month duration of the radio course, compared to its month-long alternative, lowered the teachers’ interest as well as their determination to keep on task.

And probably most importantly, the BTT students were examined more rigorously and according to different standards than their peers in the face-to-face course. There are strong indications that end-of-course exams administered to the two groups differed significantly in terms of their reliability, validity and degree of difficulty. There may also have been different standards applied in the grading of the two groups’ exams.

The lack of uniformity in the above areas was compounded by the fact that the radio-course exams were longer and were administered in two, three-hour sittings on successive days, while the face-to-face course exams were shorter and were administered in one sitting. The minimum passing score was 50 per cent in both cases. However, radio course participants were required to answer correctly 50 per cent of the questions on each section of the exam (thereby demonstrating proficiency across seven subjects), whereas their counterparts in the face-to-face courses were only required to answer correctly 50 per cent of the entire set of questions, covering four of fewer subjects.

Additional research is required to determine which of the above factors contributed most to the striking gap in pass rates associated with the two teacher-training courses. In fact, for purposes of future planning, the MOEC has agreed to undertake a comparative cost-effectiveness study of the variety of BTT courses offered to date. When such a study is completed, new knowledge about the courses’ operating procedures and success rates will become available.

**Learning gains**

Data were not available to compare the learning achieved by teachers enrolled in radio courses with those enrolled in the four face-to-face courses. The RETT Project did conduct a series of pre- and post-tests during the BTT’s second (1988–89) session, although the evaluation effort was not extensive. No such study was undertaken of the MOEC’s or any of the face-to-face teacher-training courses.

The results of the pre- and post-tests administered in 1988–89 are presented in Figure 6.5. They indicate that the average teacher participating in the radio course that year—the year prior to the implementation of the resource-teacher system—raised his or her percentage of correct answers from 56.5 per cent (142 out of 250) on the pre-test to 67.3 per cent (168 out of 250) on the post-test. As stated previously, the tests were based on the BTT curriculum and covered seven subjects, with 50 points each assigned to Nepali, mathematics and English, and 25 points each to education, science, health and social studies.
Nepal

the weights approximated the weight of each subject in the curriculum), for a total of 250 points.

Teachers improved in every subject, with the most improvement being made in education (53.2 per cent to 70.7 per cent), and the least improvement coming in social studies (54.3 per cent to 60.8 per cent). The highest mean scores on both the pre- and post-tests were in mathematics, and the lowest means on both tests were in English. An increase of 8.6 per cent on the English portion of the test still resulted in a post-test mean of 47 per cent. English was the only subject in which teachers failed to average 50 per cent, the standard pass mark in Nepal (Research Centre for Educational Innovation and Development/Ministry of Education and Culture, 1989).

One question frequently raised regarding the quality of the RETTP programmes has been whether or not the teachers were able to comprehend the radio lessons. In other words, were presentation styles, vocabulary, actors’ expression and recording quality such that teachers could understand lessons in the way intended by the course writers? Some doubt was expressed regarding this question in the final evaluation of RETT I (Butterworth et al., 1983). Subsequent analysis of programme scripts revealed that considerable inconsistency remained in the style and in the level of difficulty of vocabulary from one script to another in the Magazine Show portion of the programme (Gurung and Holmes, 1983).

Clearly, if a radio-based course is to be effective, the lessons must be written and produced in a style and at a level which is both attractive and appropriate to its principal audience. First and foremost it must be comprehensible. The final evaluation of RETT II included a modest study to determine if the BTT lessons were being understood by listeners. It was based on the sentence verification technique (SVT) for measuring reading and listening comprehension in developing countries (Greene et al., 1990). The mean score on the listening comprehension test administered to 28 teachers attending a contact session was 75 per cent, indicating a good level of listening comprehension. The test provides some evidence that participants in RETTP’s BTT course are able to understand what they hear on the radio. This is an important aspect of providing an effective instructional programme.

(Anzalone and Mathema, 1989, p. 19)

The broadcast of lessons which are well written and produced does not, of course, guarantee that participants will increase their knowledge of the subject matter being taught. Transmission must be of good quality, the radios must be working properly, and teachers must listen regularly to the programmes and read the accompanying SIMs lessons as well. Nevertheless, the finding that radio lessons, as produced by RETTP staff, were successful in communicating messages to the listeners indicates that the requisite quality level was met, and that teachers who did keep up with the course learned from it.
Figure 6.5 Pre- and post-test mean scores (percentage): RETTP's BTT, 1988–89
Attitude and behaviour changes

Most of the data on the RETTP BTT course were collected during the 1988–89 session, when the distribution of both SIMs and radios was late, and the conducting of contact sessions was limited due to the fact that the resource-teacher system was not approved until near the end of the course.

Teachers were provided with a set of pre-addressed and stamped aerogrammes, with questionnaires printed on them. They were asked to fill out and send in one of these aerogrammes twice each month for the duration of the course. These aerogrammes, along with a set of questionnaires administered during the practical sessions held in the last month of the course, provided the data on which some assessment could be made of teachers’ attitudes towards the course and the usefulness of what they were being taught. About half (47 per cent) of the participants responded, with the average teacher sending in five aerogrammes. Teachers were asked to answer the following two questions:

1. In the last two weeks have you tried to implement any of the things you learned from the lessons?
2. If you have tried to implement anything from the lessons, please list the subject and the teaching method or activity you tried.

Eighty-three per cent of the teachers responding to the above questions reported having tried to implement new knowledge or ideas in their classrooms. More than half of these mentioned specific teaching practices, including the use of concrete objects for teaching concepts in mathematics and science, practical instruction in personal hygiene and the use of maps and charts in social studies. About half of the respondents listed difficulties they had faced as well. These ranged from the lack of basic materials in the schools, safe storage for items once constructed, and poor student response to innovations. Sixty-nine per cent of the respondents did write, however, that they felt their efforts had had some positive impact in the classroom. Many of them were impressed by improved student responses to alternative questioning techniques.

Of course, these responses were all provided by the teachers, with no opportunity to monitor actual teacher or student behaviour. Furthermore, only half of the participants made the effort to respond using the aerogrammes. It is therefore not possible to draw any definitive conclusions regarding the extent to which teachers’ attitudes or behaviour were affected by participation in the BTT course. The findings of the aerograme survey together with those of the end-of-course questionnaire survey are cause for cautious optimism, however. Teachers’ responses to the final questionnaire indicated that the BTT course contributed to their mastery of all required subjects as well as to their ability and willingness to improve the teaching/learning environment of their schools.
Through community visits and letters from listeners, it was also discovered that teachers who were not enrolled in the course—both untrained and already-trained teachers—were listening in large numbers. Members of this shadow audience stated that they were also able to add to or renew their knowledge as a result of listening to the BTT programmes (Karmacharya and Khatri, 1989).

Cost analyses

In this section, the costs of radio-based and face-to-face teacher-training courses are compared. In the case of face-to-face training, only the version of the Basic Teacher Training conducted by the Regional Education Directorates is examined. Of the four face-to-face programmes, it had the largest number of participants in the period covered by this study (1987–90). It is also the one for which the most complete cost data were available. All inputs generating costs are identified for both programmes, and assumptions of the study are stated.

Recurrent costs are distinguished from capital costs, and variable costs are separated from fixed costs. The costs of training teachers via alternative strategies are then compared. Projections of the per teacher marginal costs (over the 12-year period in which the BTT course is to continue) are given for different numbers of participants. For the radio-based course, the effect on marginal costs of shortening the duration of the sessions and of doubling their frequency are also calculated. Historical costs of the RETT Project are then presented, including the cost of foreign technical assistance provided to help develop the project.

Inputs which generate costs

The major categories of costs incurred by the government in the BTT course conducted by the REDs are as follows: (1) central administrative costs for office and staff of the MOEC’s teacher training unit, which is responsible for overseeing and co-ordinating the courses conducted by the REDs; (2) site administrative costs borne at the directorates and training sites; (3) instructional materials; (4) support costs for teacher trainers; and (5) support costs for trainees. Additional categories of costs incurred are as follows: (6) expenses borne by participants during their month-long residence which are not covered by any allowances; and (7) the cost to the communities as a result of the teachers (and those teacher-trainers who are high-school teachers) being away from school for a month at a time, resulting in lost teaching time. (There is no provision in Nepal for substitute teachers).

Central administrative costs include the salaries and benefits for the staff of the teacher-training unit, along with the operating expenses of the office, and a shadow price for the rent of the office space, since the MOEC
building is owned by the government. It has been assumed that the teacher-training unit allocates 45 per cent of its effort to this particular face-to-face course. Site administrative costs include payments made to site co-ordinators at both the training-of-trainers and teacher-training locations, along with shadow-price rents for the rooms used for all sessions. Instructional materials include printed handouts and some teaching materials used during the sessions.

Support costs for teacher-trainers include salary and benefits, travel costs and daily allowances paid to faculty of education professors, district supervisors and high-school teachers during both the training-of-trainers and teacher-training sessions. For the trainees, the support costs provided by government include the travel allowance (Rs 100 on average) and daily tea allowance (Rs 3.50 per day on average—enough for three cups of tea) provided to the trainees during the month-long sessions. The participant teachers must absorb the difference between the daily tea allowance and the estimated daily cost of room and board (Rs 35); this has been termed subsistence costs borne by the trainees. The teachers’ salaries and benefits are listed under lost teaching time and, as such, a cost to the community.

There is one further category of costs which, though not included in the calculations, must be considered in this analysis. That is the foregone opportunities experienced by the participants each day they are required to be away from home. In economic terms, the time outside of school hours has equal use for the teachers to the salary-earning time during school. Teachers use such time for a variety of productive and/or leisure activities (see, for example, Klees and Wells, 1979). For most Nepalese teachers, discretionary time is spent on household or farming activities as well as in income-earning work such as private tutoring or running a shop. Regardless of which activity they choose to engage in, the time does have value for the individuals, and they necessarily lose at least some of their discretion over how to use their time when they are away from home attending a training course (either as trainers or trainees). Assuming just 12 hours of discretionary time per day—and ascribing the other 12 hours to non-discretionary tasks such as eating and sleeping—each primary teacher attending a 30-day training course would have to forego opportunities amounting to 236 hours (see discussion in section on comparison of costs, below).

The major categories of costs incurred by the government in the radio-based programme conducted by the RETT Project are as follows:

- administrative and staff support for the project office and its 45-member staff
- construction of the office complex
- construction and use of the recording studio
- production and distribution of the SIMs books
- fees paid to Radio Nepal for air time
- subsidies provided to teachers purchasing project radios
the cost of field activities including all supervision, orientations, training-of-trainers and contact sessions.

Costs borne by the participant teachers are the purchase price of a radio and the batteries to power the radio; and the expenses incurred while travelling to and from orientation and practical sessions. The final category is the cost to the communities due to lost teaching time during the approximate six days of school missed while attending course activities.

Administrative and staff support for the RETT Project includes salaries and benefits for the 45 people employed there, in addition to the operating expenses including stationery, supplies, maintenance, utilities and vehicle operating costs. It has been assumed that 75 per cent of the project’s effort was required to conduct all of the activities which make up the cycle of production, evaluation, transmission and examination. The cost of the construction of the RETT Project office complex—including the recording studio—which was undertaken in two phases, is figured in the second category. The costs of constructing and equipping the recording studio comprise the third category, along with the costs generated by the recording of lessons (artists, recording tape, and so on). The cost of SIMs includes the printing and distribution of the books.

The MOEC must pay Radio Nepal, which falls under the Ministry of Communications, a significant amount for the transmission of the programmes. The required Rs 750,000 (nearly $27,000) per year represents almost 25 per cent of RETTP’s annual budget, and approximately eight per cent of the total cost of providing the radio-based teacher-training course. Although this can be characterised as one hand of the government giving money to the other, it must be included as a cost of the programme. That same air time could be allocated to another programme, or Radio Nepal could be shut down during that time (as it is during other hours of the day). The point being that an opportunity cost is involved: the government could use those resources for any activity. By choosing to spend them on the radio-based teacher-training programme it makes those resources unavail-able for any other activity which might also be desirable. Thus, the entire amount paid to Radio Nepal for the air time has been included in the cost calculations.

Radios were sold to teachers in 1988 at a price (Rs 700) approximately 12 per cent below the actual cost of purchase and delivery. The difference (about Rs 100) is considered a subsidy provided to teachers by the government. Teachers paid the purchase price of the radio, and had to buy an estimated eight sets of four batteries each over the nine months of the course.

The additional cost incurred by teachers is that for room and board during their travel (on foot) to and from practical sessions and orientation sites. RETTP paid a daily allowance (Rs 35 per day) during such sessions to cover the costs of room and board. This is reflected in the field activities costs borne by government. As with the face-to-face training, the time spent out of the classroom is assigned to the category of lost teaching time, as a cost to the community.
The category of foregone opportunity costs incurred by the participants is as important in relation to the radio-based course as to the face-to-face course. The nature of these costs is distinctly different, however. As mentioned above, the opportunities foregone by teachers in the face-to-face course result from the fact that they must spend about one month away from home, during which time they lose discretionary authority over how they use approximately 236 hours of out-of-school time. Teachers participating in the radio-based course forego approximately 498 hours of discretionary time (spread out over nine months) assuming they participate in all course activities. This includes time spent attending and travelling to and from the orientation, practical session and final examination, as well as monthly contact sessions. It also includes time spent listening to the radio, studying the SIMs, and filling out the answer-back aerogrammes. These foregone opportunity costs have not been monetised in this cost study, though it is important to consider the implications of them in the comparative analysis.

The cost structure of both teacher-training programmes (at the level of 3,000 enrolled per year) is shown in Figure 6.6. The relative share of each cost category is shown in this pie graph. The largest single category in the radio-based course is the cost of the radio to the teacher (about 22 per cent).\(^{27}\) If all costs associated with the use of radio are combined (air time, studio construction and recording, radio purchase price and subsidy, and batteries) the total comes to 44 per cent of the overall marginal costs. The next most costly category is that of lost teaching time (about 18 per cent), followed by the field activities (13 per cent). For the face-to-face course, the largest components are the costs ascribed to lost teaching time (for both trainees and those trainers who are high-school teachers), which amount to 43 per cent of the estimated per-teacher marginal cost of the programme, and the subsistence costs borne by the trainees while in residence at the session, which represents 29 per cent of the overall costs. Of the governmental budgetary costs, the largest proportion goes for supporting the teacher-trainers (salary, benefits, allowances and travel).

If the foregone opportunities of the participants were monetised at the average hourly teacher salary, this category would be the largest item in both training courses. It would increase the per-teacher cost of the radio-based course by 172 per cent, and of the face-to-face course by 73 per cent.

Sources of support: government, teachers and communities

The most notable feature of the comparative marginal costs of the two programmes is how similar they are. At the levels of participation realised in 1988–89—approximately 2,000 for the radio-based course and 3,000 for face-to-face instruction—the per teacher marginal costs are virtually identical, at Rs 3,600 for the former and Rs 3,535 for the latter. Referring to Figure 6.5, it can be seen that the relative burden of costs borne by government, teachers
Figure 6.6 How input costs are shared among teachers, communities and government in radio-based and face-to-face BTT courses
and communities shifts considerably from one programme to the next. The community bears 43 per cent of the cost of training teachers in the face-to-face format, due to the participants missing a full month of teaching duties (and no substitute system being available); while the community bears just 18 per cent of the radio course costs because teachers miss only six days of classes. The teachers’ share increases somewhat for the radio version (33 per cent as opposed to 29 per cent for the face-to-face course), whereas the government’s share rises substantially (49 per cent of the radio course costs versus 28 per cent of face-to-face costs).

In sum, the radio-based training is more expensive for the government, and much less demanding on the communities. The face-to-face training is less expensive for the government and more demanding on the communities. For the teachers, there is not much difference in terms of how much they have to pay. There is, however, a considerable difference in terms of what they must pay for. Teachers attending a month-long, face-to-face course have to pay an estimated Rs 1,008 for their room and board requirements; those enrolled in the radio-based course pay Rs 700 for a radio, Rs 256 for batteries, and Rs 70 for room and board during travel to and from the practical session, giving a total of Rs 1,026. Since the radio will have value to the teachers for some time after the nine-month course, and since the estimate for batteries allows for their listening to other programmes, it may be assumed that the teachers would prefer the cost structure of the radio course (excluding other aspects of either mode of training).

**Capital costs and recurrent costs**

The average cost of training teachers using both radio-based and face-to-face modes has been calculated based on 1988–89 cost data. The complete cost sheets may be found in Tables 6A.1 to 6A.3 in the Appendix. The recurrent costs were calculated using the available information regarding the actual costs incurred and modalities of the courses as they were structured at the time, and as discussed in earlier sections of this study. Recurrent costs include all annual activities (contact sessions, training of trainers, and so on) and encumbrments (salaries, air time, and so on), as well as goods which must be replaced within a year or two. Capital costs are for those goods which last for more than a year or two. The major capital items are buildings and, in the case of the RETT Project, studio equipment and the cost of producing the original 480 Basic Teacher Training lessons.  

All of the costs for building space used by and for the face-to-face training courses—both in the field at the training sites, and at the MOEC and the university—have been represented as shadow prices or rents—at an assumed price of Rs 1,000 per month per room. Temporary facilities used for field activities for the radio-based course have been valued at the same rate.  

The construction costs for the RETT Project office complex in Sano Thimi,
including the sound studios, recording equipment, and cost of producing the original 480 lessons, were converted to 1988 rupees, and amortised over their assumed life—25 years for the building and studios; 12 years for the recorded lessons—at a discount rate of ten per cent per annum.30

**Fixed costs and variable costs**

Fixed costs are those which do not vary with the number of participants in the programme, such as salaries of permanent staff, all capital costs, and so on, whereas variable costs are those which increase or decrease as the number of teachers enrolled rises or falls. All costs borne by teachers and communities in both teacher-training programmes are variable: they are incurred by every teacher who participates, and by none who does not. Only the government costs can be fixed. A significant portion of the radio course costs are fixed; altogether they represented 38 per cent of the per-teacher average cost (at the 2,000 enrolment level), and would represent 29 per cent of the costs if 3,000 teachers were enrolled. These fixed costs include the salaries, benefits and support (supplies, utilities, maintenance, and so on) for the office staff, capital costs of the building and studios, radio air time, and certain aspects of the final examination and field supervision systems which are fixed in nature. A very small portion of the face-to-face course costs are fixed. They are comprised mainly of office space, staff and support for the teacher training unit, and represent only about one per cent of the average per teacher costs of the programme.

Because of the large difference in the ratio of fixed to variable costs in the two programmes, the radio-based course becomes progressively less expensive on a per-teacher basis as enrolment levels increase, whereas the per-teacher costs for the face-to-face are virtually constant at all enrolment levels. Figure 6.7 shows the portion of variable and fixed costs for both types of courses.

Fixed costs can also change, of course, if basic tenets of the programme are altered. For example, the RETT Project leadership had sought to reach agreement with Radio Nepal for an hourly time slot (rather than the 30-minute slot which they got), so that two sessions could be conducted each year rather than one. (This was in response to significant pressure brought to bear by teachers and ministry officials who felt strongly that the nine months duration of the course was too long, and that it could easily be reduced by doubling the daily broadcast time to one hour.) Since the annual cost of air time would double in relation to other fixed costs such as staff salaries and office space, the ‘mix’ of fixed cost inputs would look different.

The project has assumed that having two sessions per year would reduce per unit costs significantly. This would only be true, however, if the annual enrolment could be increased significantly. For example, if enrolments were increased from 3,000 teachers in a single session to a total of 6,000 teachers in two sessions, then the per-teacher cost would decrease by about ten per
Figure 6.7 Portion of fixed and variable costs in BTT courses: RETT (both one and two sessions per year) and face-to-face
In-service initial training of teachers

Table 6.7 Average cost (per teacher) of basic teacher-training courses at various enrolment levels (Currency: Nepal rupees)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Type of BTT course</th>
<th>No. of teachers enrolled per year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000</td>
</tr>
<tr>
<td>Radio-based BTT (one session per year)</td>
<td>4,979</td>
</tr>
<tr>
<td>Radio-based BTT (two sessions per year)</td>
<td>5,873</td>
</tr>
<tr>
<td>Face-to-face BTT (MOEC/RED)</td>
<td>3,628</td>
</tr>
</tbody>
</table>

\textsuperscript{Note}
\textsuperscript{a}. In 1988, Rs 28 = US $1.00.

cent, from Rs 3,158 to Rs 2,830. (This may be seen in Figure 6.7.) Fixed costs would be reduced in this case to 21 per cent of marginal costs. (Cost data and assumptions regarding the two-sessions-per-year model may be found in Table 6A.3 in the Appendix).

How much does it cost to train teachers via radio-based and face-to-face BTT courses?

The projected per-teacher marginal costs for conducting the Basic Teacher Training by radio-based and face-to-face modes are given in Table 6.7. In the case of the RETTP courses, figures are given for both one and two sessions per year (implications of this were discussed in the section on fixed and variable costs). It can be seen from this table that, taking into account the assumptions made in this study, the face-to-face method of teacher training is less expensive than the radio-based method at enrolment levels up to 2,000; and that the radio-based method is less expensive at levels of 3,000 and higher.

The data used for this cost analysis were from the 1988–89 fiscal year. The RETTP radio-based course had 1,585 participants that year, and the MOEC/Regional Education Directorates’ face-to-face courses had 2,583 participants. Projections have been made for other levels of enrolment based on those data, with adjustments for anticipated needs which would come with larger-scale implementation.\textsuperscript{31} Yet, large increases in the number of participants are likely to change the way any instructional delivery system operates. This is one reason why such projections must always be treated with caution.

The original goal of enrolling 5,000 teachers per year was never achieved by the RETT Project in its first 12 years. The most teachers enrolled in any one year was 1,934 in 1982–83, in the course for under-SLC teachers. Since the inception of the BTT course in 1987, project leaders hoped to enrol up to 3,000 teachers per year. Ministry officials preferred waiting until the system was established and in place before expanding to numbers of that magnitude. In any case, the RETT
Project has yet to prove that it can successfully administer a training course for more than 2,000 participants. At what level of enrolment would the project staff itself have to be increased significantly, thus raising fixed costs? This is an empirical question which cannot yet be answered.

It is this type of issue which is crucial to a consideration of whether it is advantageous to broadcast two sessions per year instead of one. At equivalent levels of enrolment, it is advantageous from a cost perspective to conduct one, and not two, sessions per year. This is so, of course, because fixed costs such as radio air time are also doubled when the additional session is run. The question is really, therefore, what is the maximum number of teachers which the RETTP BTT system can manage without over-extending its logistical capacity and reducing the effectiveness of the course? If it is, for example, 3,000, and 4,000 (or more) teachers need to be trained, then the cost effective decision would be to conduct two sessions of 2,000 teachers each.

The cost analysis thus far has been of marginal costs for alternative methods of teacher training. It assumes that the delivery systems and infrastructure are already in place. The capital costs of items such as the buildings, recording studios, and so on are included. Yet such systems are not created within a short time span. The MOEC could launch, on very short notice, a large-scale face-to-face teacher-training campaign only because the Faculty of Education and the MOEC’s line agencies at the regional and district levels had large numbers of professional educators (requiring large sums of capital investment) and considerable institutional experience at their disposal. Similarly, the RETT Project was able to develop and produce its BTT course within a six-month period because it, too, had by that time developed into a mature institution. How much of the ‘historical costs’ of that institutional development to ascribe to the launching of any one programme such as BTT is an impossible question. Yet those costs cannot be ignored. It is for this reason that the total costs of the RETT Project (1978–90) are presented in the next section.

**Historical costs of the RETT Project**

The analysis and discussion of costs thus far has dealt primarily with the subject of marginal costs. It assumes that the institutional structures for conducting BTT courses, whether via a radio-based technology or via a more traditional, face-to-face format, have been developed and are in place. The costs of administering these programmes for the next 12 years—for the duration of the Basic Needs campaign—are marginal costs, that is, the costs generated by each additional teacher enrolled (in terms of variable costs) or session conducted (in terms of fixed costs).

Development costs are reflected in this analysis to the extent that the annualised costs of capital items such as buildings and recording equipment have been included. Yet this does not give any indication of what might be termed the ‘historical costs’ involved in the development of the relevant
institutions. Historical costs are more significant in relation to innovative educational technology projects such as Nepal’s RETTP than they are to alternative face-to-face training programmes. ‘What is the start-up time of a radio-based, distance-education teacher-training system?’ is a vital question for educational administrators and planners who are considering alternative approaches.

So many factors are involved, however, that it is extremely difficult to arrive at a definitive answer. What is the entry level of readiness of the staff who will be hired or deputed to the new project? Is expertise in script-writing, educational radio production, and so on available locally, or will foreign technical assistance be required? Does the country have a national radio transmission capacity at present, or will new broadcasting equipment have to be purchased? And what about recording facilities? Where will the distance-education programme be situated in the ministerial or university hierarchy? How much autonomy will it have? These are some of the questions whose answers will have great bearing on the final answer to the questions ‘How long will it take?’ and ‘How much will it cost?’ So much depends on unique, contextual variables, making it impossible to generalise, and risky to extrapolate from the experience of one project to another.32

Two tables are presented below which will help to clarify the nature of the investment which was made in the RETT Project during the period 1978–90. Table 6.8 gives the breakdown of both budgeted and expended funds during the second phase of the project, showing the respective amounts for each funding source, USAID and the Nepalese government. Of these categories, the local support costs, building construction and some of the commodities have been included in the cost analysis of marginal costs. Technical assistance, training and external evaluation have not been included.

The same is true for the data in Table 6.9, which shows the historical costs for both phases of USAID assistance. Some of the categories are not comparable across project phases; this has been explained in the footnotes. It can be seen from this table that the first phase of the project was about two and a half times more expensive than the second phase, primarily due to the much larger commitment of technical assistance and expenditures on commodities amounting to nearly 42 per cent of the total project cost. Certainly RETT II built on the foundation which was begun during RETT I; yet it would be impossible to determine to what extent any portion of RETT I costs may have been necessary and prerequisite to RETT II. For example, only six of the more than 20 project staff who received overseas training under RETT I were still with the project during the second phase. For the same reason of staff attrition, much of the on-the-job training given by foreign advisers during RETT I may not have directly benefited those working on RETT II. And the frequent changes in project leadership and location which characterised the first nine years of the project’s history most certainly resulted in a less-than-efficient development. Yet it would be erring on the other side to assume that a new radio education project starting up now could benefit from these lessons and progress through the initial stages without suffering from some of these growing pains. To some extent, any new
One point which is evident from Table 6.8 on RETT II costs is that the Nepalese government spent almost 78 per cent more supporting project activities than it was obligated to according to the terms of the project grant agreement. This is strong evidence of the fact that RETT II did eventually mature into a fully institutionalised agency of the MOEC, which is something many educational technology projects have been unable to achieve. This is discussed in more detail below.

<table>
<thead>
<tr>
<th>Budget category</th>
<th>USAID budget</th>
<th>USAID expenditure</th>
<th>Government budget</th>
<th>Government expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical assistance</td>
<td>604,400</td>
<td>794,554</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>421,000</td>
<td>233,996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation (external)</td>
<td>55,600</td>
<td>32,571</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local support costs</td>
<td>250,000</td>
<td>225,703</td>
<td>234,099</td>
<td>415,598</td>
</tr>
<tr>
<td>Commodities</td>
<td>435,000</td>
<td>510,992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building construction</td>
<td>–</td>
<td>175,410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency/inflation</td>
<td>353,700</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,119,700</strong></td>
<td><strong>1,973,226</strong></td>
<td><strong>234,099</strong></td>
<td><strong>415,598</strong></td>
</tr>
<tr>
<td><strong>TOTAL (in 1988 US dollars)</strong></td>
<td><strong>2,256,875</strong></td>
<td><strong>2,100,921</strong></td>
<td><strong>249,249</strong></td>
<td><strong>442,493</strong></td>
</tr>
</tbody>
</table>

Notes

a. Data based on the USAID/Nepal accounts as of 30 April 1990, with estimates by the authors of additional expenditures incurred prior to 30 September 1990 end of RETT II Project. (Figures have been left in current dollars (unadjusted for inflation) in this table, so that they may look familiar to those who have been associated with the project).
c. Includes two long-term expatriate advisers for a total of 84 months, two long-term Nepalese advisers for a total of 42 months, and ten months short-term expatriate technical assistance.
d. Includes in-country and third-country short-term training for RETTII and Radio Nepal personnel, three Masters’ degree programmes for RETTII staff and one for CERID staff, in the US.
e. Mid-term evaluation (1986) and final external evaluation (1988).
f. This item represents the entire budget for the RETT Project as per the government/MOEC approved annual budget and workplan. The government portion represents the normal operating budget for the project, including transmission of programmes, salaries and benefits, travel, utilities, stationery, maintenance, and so on. The USAID portion supports printing of SIMs, and added costs incurred due to research and evaluation activities and programme development costs, such as actors’ remunerations, support to DEOs, and so on.
g. This represents commodities for both the RETT project (new equipment and spare parts for recording studio, one all-terrain vehicle, three motorcycles, photocopying and typing equipment, a computer, a VCR and camera, and so on) and Radio Nepal.
h. Of this cost, $130,000 represents cost of construction of the 22-room new wing of the RETT offices; remainder represents additional construction of a second studio (for future projects) and landscaping costs. Only the former has been included in annualised capital costs in recurrent cost analysis.
i. This budget allocation was applied primarily to the office construction, as well as additional technical assistance.
CONCLUSIONS

In this section, we summarise major findings from our case study of Nepal’s Radio Education Teacher Training Project by answering the following questions: (1) Is RETTP’s Basic Teacher Training course educationally effective?; (2) Can Nepal afford the RETT Project?; and, drawing on the lessons learned from this study, (3) What are the prerequisites for success in radio-based, distance education teacher-training projects?

Is RETTP’s BTT course educationally effective?

Teachers participating in the 1988–89 session made overall gains of 12.3 per cent in the seven subjects covered in the course, as measured by the pre-post
series of tests. Letters from the field as well as responses to survey questions indicated that many—though not all—teachers tried to incorporate what they had learned from the lessons into their classroom teaching. Most were at least somewhat encouraged by the results of these initial innovations, although many cited obstacles to success as well. The overall completion rate of 83.4 per cent is quite satisfactory for a distance-education system of this type. The pass rate of 56.6 per cent for teachers in the radio-based course is consistent with campus-based courses in Nepal of earlier years (prior to the launching of BTT). It is remarkable only in contrast to the 94.8 per cent pass rate of the four face-to-face BTT courses.

More definitive answers to the question of how effective radio-based training courses are compared to face-to-face alternatives will have to await the results of the planned comparative cost-effectiveness study. Similarly, further study will be required to identify the causes of the vast difference in the pass rates of the two courses. Although no definitive response can be given to the question ‘Is RETTP’s BTT course educationally effective?’, it can be said that there is no evidence to indicate that it is any less effective than the face-to-face alternatives.

Can Nepal afford the RETT Project?

Here, too, there is no definitive answer. The data do indicate that the course—as it is presently structured—would be less expensive on a per-teacher, unit-cost basis than the face-to-face alternative if upwards of 3,000 teachers were to be enrolled and the course successfully managed. Although it has yet to be demonstrated that the RETT Project can conduct a session with that size of enrolment, there is no evident reason to suspect that it cannot. In the long run, however, it is unlikely that the RETT Project will prove to be truly ‘affordable’ (or cost-effective) if its role is limited to the present BTT course. Considerable capacity now exists in the RETT Project as a result of investments made in professional staff and expertise, buildings, studio equipment and outreach. Full utilisation of such professional talent and infrastructure will only be realised when additional tasks are undertaken, be they in the field of teacher training or in other educational endeavours.

What are the prerequisites for success?

*It takes time*

The most notable indicator of the RETT Project’s success is the degree to which it has been institutionalised within the MOEC. This was the result of an evolutionary process. All three major, external evaluations of the USAID-assisted projects emphasised the inability to provide a stable home and stable
leadership to the project as a major factor contributing to slower-than-desired progress in the years up to 1987.

Since its founding in 1987, the project has had five institutional homes, nine project chiefs, and two phases of donor participation. Originally placed under the Dean of Education, Tribhuvan University, it was moved to the MOEC in 1979. Not long after it was moved to the semi-autonomous Curriculum, Textbook and Supervision Development Centre of the MOEC where it remained until 1986. In that year the first concrete step towards the institutionalisation of the project was taken: 20 permanent civil-service positions were created and the project was placed in the MOEC under the Educational Administration Division. A year later it was transferred to the newly created Primary Education Division, which is responsible for administration of the Basic Needs for All campaign within the ministry.

Since the end of RETT I, the project has operated, in so far as administrative and budgetary regulations and procedures are concerned, as a regular office of the government, without any of the special procedures often associated, at least in Nepal, with the term ‘project’. (It survives as a ‘project’ only in name—the name of the office never having been changed to ‘unit’, ‘section’, or ‘centre’, as would befit a permanent office of the MOEC). Whereas this fact was often cited as a reason for slow decision-making and implementation of activities, it also seems to have paid off in terms of project longevity, as evidenced by its ability to build a constituency for itself within the government.

In addition to its hierarchical links within the MOEC, the project has also developed strong horizontal links with a number of agencies. Given the size of RETTTP—with a current staff of 45—it is perhaps unusually complex in terms of its institutional relationships. It works directly with the REDs and DEOs—the field agencies of the ministry—in terms of recruiting, enrolling, supervising and evaluating teachers. Its major decisions are made by the RETT Policy Committee, consisting of higher-level MOEC officials, the Project Chief, and representatives from the National Planning Commission, the Ministry of Finance, and Radio Nepal. It is also dependent on Radio Nepal for the broadcasting of all of its programmes. And, of course, it has benefited greatly from the funding and technical direction provided by the Nepal Mission of USAID.

It is most noteworthy that the Nepalese government contributed 78 per cent more by way of direct financial support to the project during RETT II than it was obliged to under the terms of the original project agreement (as seen in Table 6.8). Furthermore, the government increased its support in 1990–91, as USAID assistance came to an end, and again in 1991–92. Given the extreme financial pressures experienced by Nepal at the time, this is solid evidence of the government’s commitment to teacher training, and to RETTTP’s unique contributions.

RETTP’s experience is proof once again that successful projects are not developed overnight, or even within the typical five-year time-span of a donor-assisted programme.
The project cannot develop more quickly than the infrastructure it depends on

A distance-education system cannot develop faster than a country’s communications and educational infrastructure unless it is endowed with its own recording facilities and broadcasting network, along with its own staff to carry out monitoring and logistical activities in the field. It must work in co-ordination with other agencies in the country. Unquestionably, the RETT Project benefited from the growth of Radio Nepal, and especially the expansion of its medium-wave transmitter network in the latter part of the 1980s. Earlier efforts to deliver its programmes nationwide were largely ineffective due to the limited capacity of Radio Nepal at the time.

Project goals must be clear, and agreed upon by all parties

It was only in 1987, with the mandate to begin training qualified (that is, SLC-pass) teachers, that the RETT Project was able to contribute significantly to educational development in Nepal. Prior to that it suffered from an unclear mission and struggled to develop programming for an audience of marginal importance.

Sustainability requires autonomy and flexibility

Even if project goals are clear and agreed upon by all parties—as they were not always in the case of RETTP—and even if the project design incorporates adequate technical feasibility assessments—as was certainly not the case with RETT II—a radio-based distance-education system still requires frequent policy renewal at the highest levels of government. The complexity of the undertaking and the fact that so many ministries and institutions are inevitably involved demand such attention. The higher the project is placed within the government hierarchy, and the greater the recognition enjoyed by its leaders, the greater will be its chances for success.

NOTES

1. The famous Gorkha soldiers of British military fame were, of course, one group which was exempted from travel restrictions.
2. Universal education is defined to mean that all students are within walking distance of a primary school.
4. Several alternatives to the traditional, campus-based format had been experimented with but none had proven to be efficient. These included a print-based distance education training and the longer-lived on-the-spot training which employed university faculty staff during vacation periods to travel to rural areas and conduct classes.

5. Ironically, at a time (1981 to 1987) when most SLC-pass teachers still lacked training there existed the anomalous situation that the only teacher-training activities being carried out which involved significant numbers were for the under-SLC group: the USAID-funded RETTP, and the UNDP-funded Equal Access for Women’s Project (targeted mostly at under-SLC female teachers). This explains the rise in the portion of this group who were trained, as seen in Figure 6.2.

6. Following the 1987 decision, all efforts were focused on the design and implementation of the BTT course. The other three steps of the training programme are yet to be implemented.

7. RETT II concluded on 30 September 1990, ending USAID’s involvement with the project, at least for the time being.

8. At that time, primary schools contained Grades 1 to 3, lower secondary 4 to 7 and secondary 8 to 10. This configuration was changed in 1983, primary schools going to 1 to 5 programme and lower secondary schools 6 to 7. The curriculum of the RETT course was never actually changed, though there were plans to do so.

9. One hypothesis to explain this relatively high completion rate is that many of the teachers believed there was a reasonable chance that, were they to perform well enough on the post-test, they would be granted an exemption to the SLC-pass requirement in the teaching profession.

10. New Era’s 1973 study found that one out of every 18 families possessed a radio—and that the rate was no different for teachers than for any other occupational group (New Era, 1973). One RETT I Project report estimated radio ownership among project participants at 17.5 per cent (Paige et al., 1984). A later study in two rural districts found that between 28 and 32 per cent of the families not living in town areas owned a radio. It also found that the incidence of ownership among teachers fell within the same range (Gurung and Holmes, 1983). Surveys of the participant teachers by the project in 1988–89 indicated that 41 per cent of the teachers had a non-project radio at home (Karmacharya and Khatri, 1989).

11. The real problem with this aspect of the project had nothing to do with arrangements between the project and the participants, but between USAID and the Nepalese government. The project plan called for a special account to be set up. Funds from the sales of radios to teachers were to be placed in this account, and the money used to purchase additional radios. Unfortunately for the participants, this stipulation was included as a ‘condition precedent’ in the project agreement and, as a result, the ordering and delivery of radios was delayed at some length while the legal aspects of the account were worked out to the satisfaction of the two governments.

12. Given the inconsistent quality of Radio Nepal’s short-wave transmissions, the use of a single short-wave band was never a satisfactory arrangement, and teachers wrote hundreds of letters over the years reporting poor reception of RETT broadcasts. During the Radio Tuition years, when teaching English-by-radio on short wave turned out to be wholly unacceptable and the MOEC supported paying significantly higher rates to broadcast the programme on all of Radio Nepal’s frequencies—including medium-wave—in prime time, the project was able to collect evidence supporting the benefits of better reception for the participants. It was then able to negotiate a similar arrangement with Radio Nepal for the new BTT course in 1988. However, Radio
Nepal—the nation’s only radio station, broadcasting essentially on only one channel—was unable to offer a one-hour time slot on all frequencies. So the half-hour per day format was agreed upon for BTT, resulting in its longer, 240-day broadcast calendar.

13. The teams consisted of Faculty of Education instructors, Regional Specialists, District Supervisors and high-school teachers from a given area.

14. Thus far the RETTP BTT course has focused on the districts in the regions around Kathmandu. This is because the project leadership wanted to restrict coverage to Radio Nepal’s medium-wave reception area. It is anticipated that in 1992, when the installation of the new transmitters will expand medium-wave coverage to approximately 90 per cent of the country, RETTP will be able to move effectively into new areas in the eastern and western parts of the country.

15. The exact shape and nature of the practical sessions has changed each of the three years since BTT has begun. Beginning with the original design of a five-day, 30-hour programme, this was cut to four-day, 28-hour programme in 1990 due to government-wide revenue shortages in the wake of political changes and economic instability in the country. And for the 1990–91 session—the first to be run without donor assistance—much of the curriculum previously covered during these sessions were reduced to just two days.

16. These might include, for example: a school lunch programme, one of several adult literacy or cheli-beti (out-of-school girls’ education) programmes, population education, PEP, Seti Zone, and so on, in addition to education components of the various regional integrated rural development projects (IRDPs).

17. Training for English trainers lasts for 21 days; training for other subjects lasts for 14 days.

18. The results in English were somewhat higher than the scores teachers made in the second year of Radio Tuition. (The courses and tests were quite different of course, and not directly comparable.) In Radio Tuition, 215 participants improved from 37.2 per cent on the pre-test to 43.0 per cent on the post-test. This difference was significant at p<.05.

19. These aerograms, too, were delivered late to many participating teachers.

20. For all employees (whether of the government, schools or university) it has been assumed that 50 per cent, as permanent employees, receive both salary and benefits, while the other 50 per cent, as temporary employees, receive only salary.

21. The costs of these items are given in Table 6A.1 of the Appendix, and set out in detail in Holmes et al. (1991), pp. 59–61.

22. Since the government pays 100 per cent of primary-school teachers’ salaries and benefits, it would have been conventional to include the teachers’ salaries (which continue to be paid to them throughout the training period) under costs of the training borne by the government. Here, however, this amount has been listed as a cost to the community, since it was felt that the absence of the teachers from their classrooms for 30 days represented a significant cost to the communities—schools and students—which should be costed.

23. Overall course costs are summarised in Table 6A.2 of the Appendix. Itemised costs for the RETTP BTT course and details of the practical session costs are in Holmes et al. (1991), pp. 62 and 56–8 respectively.

24. The remaining 25 per cent is estimated to have been spent on other activities, including development of future programmes.

25. According to the RETT II Project grant agreement, USAID would purchase the radios, which would be sold to the teachers. These funds were to be placed in a
revolving fund, from which additional radios would be purchased for new groups of teachers. Thus it would be justifiable to list USAID’s original radio purchase as a capital cost, which could be amortised over the life of the project. Recurrent costs would be the difference between the price of new radios and the amount collected for the old ones. This would result in a lower cost calculation for the course—the teachers would of course pay the same amount, but government revenues would offset this, reducing overall costs. It was decided to list the entire cost of the radio, however, primarily because it is not clear how this system is working in practice. Similarly, the foregone revenue to the government resulting from the fact that USAID purchased the radio on a duty-free basis has not been calculated as a cost of the programme, on the assumption that the teachers would not have purchased the radio except for the purpose of participating in the teacher training course.

26. The batteries available in rural markets are expensive and of notoriously poor quality. Although the batteries might last considerably longer if used only for the three hours each week of RETTP broadcasts—thus reducing the cost estimate—this seems to be a meaningless argument. The teachers purchased the radio to be able to participate in the training programme and to tune in to other programmes during the day.

27. Of course including the full purchase price might imply that the radio has no further utility once the training course is completed, which is not the case. However, the assumption has been made already that the teachers would not have purchased the radio were they not enrolled in the course. In order to be consistent, the full price of the unit has been included.

28. Production costs include remuneration to musicians and actors and the cost of recording tape.

29. Some of the training sessions are held at schools or campuses during vacation or other slack time, or in government buildings which may otherwise have been idle. In the absence of specific information, however, costs have been assigned to all room usage.

30. Although the assigned shadow price of Rs 1,000 ($36) per room per month (which was applied to the use of all training sites and offices) may sound high in the Nepalese context (at 1988 prices), it should be noted that the monthly cost of each room (excluding recording studios) at the RETT Project office is Rs 2,294 ($82). The higher cost of the latter reflects the high standard of construction of the building.

31. For example, it was assumed that the radio-based course would continue to operate in six districts at a time at enrolments up to 2,000, but that more districts would be participating at higher levels. The support for field supervision and monitoring (treated as fixed costs) was adjusted accordingly. Similarly, when making projections for conducting two RETTP sessions per year, it was assumed that additional non-professional staff would be hired due to the additional logistics involved.

32. For example, a significant proportion of USAID expenditure on commodities during both phase I and II of the RETT Project went to Radio Nepal for the purchase of a 100,000-watt short-wave transmitter and antenna, as well as lots of ancillary equipment. Yet it was not until Radio Nepal’s medium-wave capacity was expanded (using other sources) that the RETT programmes benefited from quality transmissions. Should the RETTP costs be considered in an analysis of
development costs or not? There are many such questions in the 12-year life of a project.

REFERENCES


In-service initial training of teachers


**ABBREVIATIONS**

BTT      Basic Teacher Training course
CERID    Research Centre for Educational Innovation and Development, Tribhuvan University
DEO      District Education Officer/Office
MOEC    Ministry of Education and Culture
NESP    New Education System Plan (1970)
PEP     Primary Education Project (Nepalese government/World Bank/UNDP)
RED     Regional Education Directorate/Director
RETT    Radio Education Teacher Training Course (for under-SLC teachers)
RETT I   Radio Education Teacher Training Project, First Phase (1978–83)
RETT II  Radio Education Teacher Training Project, Second Phase (1984–90)
RETTTP  Radio Education Teacher Training Project (the institution)
Rs      Rupees—the Nepalese currency (1988 Rs 28 = $1.00; 1978–90 average Rs 21.50 = $1.00)
RT      Resource teacher
SIMs    Self-instructional materials
SLC     School Leaving Certificate
USAID   United States Agency for International Development

**ACKNOWLEDGEMENTS**

The authors wish to acknowledge with sincerest thanks the help provided by the following people, without whose help this study would not have been possible: Mr Hem Chandra Shrestha and Mr Rameshwar Shrestha, RETT Project Chiefs, and other members of the RETT Project staff; Mr Tri Ratna Tuladhar and Drs Michael Calavan, Jean Meadowcroft and Virgil Miedema of USAID/Nepal; and Dr Steven Klees of Florida State University.

**APPENDIX 6A: COST TABLES**

### Table 6A.1 Costs of ‘face-to-face’ BTT course (Currency: Nepal rupees)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Costs to government</th>
<th>Analysis of average (fixed and variable) costs for operation of ‘face-to-face’ BTT course</th>
<th>Projected course costs at various enrolments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixed</td>
<td>Variable</td>
<td>Costs to teachers</td>
</tr>
<tr>
<td>(MOEC Teacher Training Unit 8 FTE staff)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office space in MOEC</td>
<td>10,800</td>
<td></td>
<td>10,800</td>
</tr>
<tr>
<td>Instructional materials</td>
<td>2,000</td>
<td>10</td>
<td>2,000</td>
</tr>
<tr>
<td>Final examination (during BTT; no extra time)</td>
<td>10,000</td>
<td>10</td>
<td>10,000</td>
</tr>
<tr>
<td>Training of trainers</td>
<td>1,000</td>
<td>63</td>
<td>0</td>
</tr>
<tr>
<td>(Average annual recurrent need: to train 32 trainers)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,000</td>
<td>874</td>
<td>1,008</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>BTT sessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(30 days × 5 hours;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 trainers/50 trainees;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000 trainees per year)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>139,973</td>
<td>957</td>
<td>1,008</td>
</tr>
<tr>
<td>Unit cost (per enrolled)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,663</td>
<td>3,628</td>
<td>3,558</td>
</tr>
</tbody>
</table>

**Notes**

a. Based on 1988–89 BTT figures.
b. This represents staff salaries and benefits pro-rated at 45% of their workload assigned to teacher trainings conducted by MOEC/Regional Directorates.
c. This represents the shadow price for the space occupied by the Teacher Training unit in the MOEC building, pro-rated at 45%, the share of the overall teacher training annual target (6,667 teachers) trained by MOEC/Regional Directorates.
d. Rs 1,008 is 'additional expenses' borne by teachers as a result of the daily allowances being less than cost of room and board during training. The foregone opportunities, resulting from teachers being away from home and losing free use of discretionary time, have not been costed. If valued at teachers' hourly salary rate, the opportunity costs for high-school trainers and primary-school trainees would total to Rs 6,760 per trainee.
Table 6A.2 Costs of RETT BTT course (Currency: Nepal rupees)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Costs to government</th>
<th>Costs to teachers</th>
<th>Costs to community</th>
<th>Social costs (govt+tehrs+comm)</th>
<th>Projected course costs at various enrolment levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixed</td>
<td>Variable</td>
<td>Fixed</td>
<td>Variable</td>
<td>Fixed</td>
</tr>
<tr>
<td>Administrative costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Professional staff</td>
<td>697,805</td>
<td></td>
<td>697,805</td>
<td></td>
<td>697,805</td>
</tr>
<tr>
<td>- Non-professional staff</td>
<td>343,695</td>
<td></td>
<td>343,695</td>
<td></td>
<td>343,695</td>
</tr>
<tr>
<td>- Recording studios'</td>
<td>186,050</td>
<td></td>
<td>186,050</td>
<td></td>
<td>186,050</td>
</tr>
<tr>
<td>- Building (excluding studio)'</td>
<td>605,653</td>
<td></td>
<td>605,653</td>
<td></td>
<td>605,653</td>
</tr>
<tr>
<td>Radios</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Transistors</td>
<td>100</td>
<td>700</td>
<td>0</td>
<td>800</td>
<td>640,000</td>
</tr>
<tr>
<td>- Batteries</td>
<td>256</td>
<td>0</td>
<td>256</td>
<td>204,800</td>
<td>256,000</td>
</tr>
<tr>
<td>- Diffusion</td>
<td>750,000</td>
<td></td>
<td></td>
<td></td>
<td>750,000</td>
</tr>
<tr>
<td>- Reception</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(125 hours)</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Radio Lessons</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>- Studio production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Annual revisions</td>
<td>9,600</td>
<td></td>
<td>9,600</td>
<td></td>
<td>9,600</td>
</tr>
<tr>
<td>SIM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Production/distribution/use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Administration/sitting</td>
<td>20,000</td>
<td>40</td>
<td>245</td>
<td>20,000</td>
<td>285</td>
</tr>
<tr>
<td>Evaluation/supervision</td>
<td>10</td>
<td>0</td>
<td>8,000</td>
<td>10,000</td>
<td>20,000</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----</td>
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<td>--------</td>
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<td>--------</td>
</tr>
<tr>
<td>Aerogramme feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(questionnaire 1/month)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring by project</td>
<td>22,000</td>
<td>22,000</td>
<td>0</td>
<td>22,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Supervisors’ workshops</td>
<td>32,000</td>
<td>32,000</td>
<td>0</td>
<td>32,000</td>
<td>32,000</td>
</tr>
<tr>
<td>Field supervision by DEOs</td>
<td>28,000</td>
<td>28,000</td>
<td>0</td>
<td>28,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Resource teacher system</td>
<td>44</td>
<td>44</td>
<td>35,200</td>
<td>44,000</td>
<td>88,000</td>
</tr>
<tr>
<td>(3 hour session; 1/month)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical sessions</td>
<td>249</td>
<td>317</td>
<td>637</td>
<td>509,379</td>
<td>636,723</td>
</tr>
<tr>
<td>(30 hours in 5 days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher orientation (half day session)</td>
<td>40</td>
<td>40</td>
<td>32,000</td>
<td>40,000</td>
<td>80,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2,757,361</td>
<td>1,026</td>
<td>562</td>
<td>2,757,361</td>
<td>2,222</td>
</tr>
<tr>
<td>Unit cost (per enrollee)</td>
<td>5,668</td>
<td>4,979</td>
<td>3,600</td>
<td>3,158</td>
<td>2,803</td>
</tr>
</tbody>
</table>

**Notes**

a. Based on data from 1988–89 fiscal year and BTT session.
b. It is assumed that 75% of RETT Project’s effort goes towards the BTT programme (25% towards other developmental activities). 75% of total salaries and benefits = Rs 1,041,500, of which 67% goes for professional staff and their support,
c. 33% of salaries and benefits for non-professional staff.
d. Again it is assumed that 75% of office activities are for BTT; this cost is the annualised cost of studio equipment and rooms at 1988 prices.
e. RETT Project complex was constructed in two phases; total costs have been converted to 1988 prices (Rs 4,100,000) and annualised over 50 years; 75% of this has been taken as costs due to the BTT course.
f. These activities require that teachers use their discretionary time for BTT activities, resulting in foregone opportunities, which have not been assigned monetary values here. At the teacher’s hourly salary rate, these would total to Rs 5,409.
g. Production costs exclude time of RETT staff which is counted under administrative costs; cost of original lessons has been amortised over 12 years of expected use.
### Table 6A.3 Costs of radio-based course if run with two sessions per year (Currency: Nepal rupees)

<table>
<thead>
<tr>
<th>Costs to government</th>
<th>Analysis of average (fixed and variable) costs for RETT/BTT course if run with two sessions per year</th>
<th>Projected course costs at various enrolment levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>Costs to teachers community fixed</td>
<td>Social costs</td>
</tr>
<tr>
<td>Variable</td>
<td>Fixed (govt+chrs+comm)</td>
<td>Variable</td>
</tr>
<tr>
<td>Administrative costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Professional staff</td>
<td>343,695</td>
<td>343,695</td>
</tr>
<tr>
<td>- Non-professional staff</td>
<td>767,586</td>
<td>767,586</td>
</tr>
<tr>
<td>- Recording studios</td>
<td>186,050</td>
<td>186,050</td>
</tr>
<tr>
<td>- Building (excluding studio)</td>
<td>605,653</td>
<td>605,653</td>
</tr>
<tr>
<td>Radios</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Transistors</td>
<td>100 700</td>
<td>0 800</td>
</tr>
<tr>
<td>- Batteries</td>
<td>256</td>
<td>0 256</td>
</tr>
<tr>
<td>- Diffusion (125 hours)</td>
<td>1,500,000</td>
<td>0 1,500,000</td>
</tr>
<tr>
<td>- Reception (125 hours)</td>
<td>r 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Radio lessons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Studio production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Annual revisions</td>
<td>9,600</td>
<td>9,600</td>
</tr>
<tr>
<td>SIM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Production/distribution/use</td>
<td>150</td>
<td>r 150</td>
</tr>
<tr>
<td>Final examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Administration/sitting</td>
<td>40,000</td>
<td>40,000</td>
</tr>
<tr>
<td>- Evaluation/supervision</td>
<td>40,000</td>
<td>40,000</td>
</tr>
<tr>
<td>- Aerogramme feedback</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
a. The following assumptions were made in projecting the costs of RETTP BTT programmes if daily broadcasts were increased from 30 minutes per day to one hour per day, thereby allowing the completion of two 4.5 month sessions per year:
(1) Variable (per teacher) costs will not change
(2) Cost of radio workshop and building capital costs, and professional staff will remain the same
(3) Cost of non-professional staff will increase by a factor of 10% (representing three additional positions)
(4) Cost of supervisors’ workshops will increase by 50% (but not double since already trained supervisors can be utilised in more districts)
(5) Cost of district monitoring by RETT Project and field supervision by DEOs/supervisors will increase by 75%
(6) Cost of air time on Radio Nepal and cost of final examination will increase by 100%.
b. It is assumed that 75% of RETT Project’s effort goes towards the BTT programme (25% towards other developmental activities). 75% of total salaries and benefits = Rs 1,041,500, of which 67% goes for professional staff and their support,
c. 33% of salaries and benefits for non-professional staff.
d. Again, it is assumed that 75% of office activities are for BTT; this cost is the annualised cost of studio equipment and rooms at 1988 prices.
e. RETT Project complex was constructed in two phases; total costs have been converted to 1988 prices (Rs 4,100,000) and annualised over 25 years; 75% of this has been taken as costs due to the BTT course.
f. These activities require that teachers use their discretionary time for BTT activities, resulting in foregone opportunities, which have not been assigned monetary values here. At the teacher’s hourly salary rate, these would total to Rs 5,409.
g. Production costs exclude time of RETT staff which is counted under administrative costs; cost of original lessons has been amortised over 12 years of expected use.
The National Teachers’ Institute, Nigeria

Catherine I.Bako and Greville Rumble

Following acceptance of an initial concept ‘paper’ in May 1974, the National Teachers’ Institute (NTI), Kaduna, Nigeria, was established by Federal government decree number 7 of 10 April 1978 in response to the national shortage of trained teachers. This case study examines the developing roles of the NTI and in particular the nature and costs of its distance-learning programme within the context of Nigeria’s educational needs.

NIGERIAN EDUCATION SYSTEM (1990)

The mainstream educational system in Nigeria (that is, excluding craft education) begins normally at the age of six years with six years of primary education leading to the First Leaving Certificate. Pupils who go on to secondary level do a common junior secondary school syllabus (three-year course) before embarking on a further three years in one of three streams: the academic stream (senior secondary school), technical education, or primary-school teacher training. Successful students can then move on to university (embarking on a four-year first degree course), polytechnic (leading to the Ordinary National Diploma, or OND, after two years and Higher National Diploma, or HND, after four years), secondary teacher training (leading to the Nigeria Certificate in Education or NCE), or professional education, leading to various certificates and diplomas (see Figure 7.1).

This structure itself reflects changes to the educational system which existed in the mid-1970s when NTI was founded. These include the phasing out of the Primary Teacher Training Grade III certificate, which was awarded following successful completion of a three-year post-primary course, and the move from a five-year secondary-school cycle to a three-plus-three-year pattern, including the introduction of a common three-year junior secondary school qualification prior to specialisation in senior secondary school, technical education, or teacher training. Previously specialisation occurred following completion of primary education.

So far as teachers’ qualifications are concerned, there have been five basic levels of qualifications.
The standard qualification for primary-school teachers is at present the Teacher’s Certificate Grade II (TCII) qualification. Under Nigeria’s present education system (the so-called 6+3+3+4 structure) student-teachers who have completed three years’ junior secondary school are enrolled in a teachers’ college, obtaining the TCII following successful completion of a three-year course. Not all teachers, however, have their TCII. Teachers who have taken the TCII course but failed to qualify are known as TCII (referred) teachers.

Under the previous structure (the 6+5+3/4 system) trainee primary-school teachers could enter a teachers’ college: (a) following completion of their six-year primary-school education. In this case, the TCII could be obtained after four years’ study (southern Nigeria) or five years’ study (northern Nigeria); (b) following completion of secondary-school education. Students
who had obtained their School Certificate could take a two-year teacher-training course; (c) following an in-service upgrading course for under-trained teachers.

Under the 6+5+3/4 system some primary-school teachers obtained the Teacher’s Certificate Grade III qualification (TCIII). This was awarded to those trainee teachers who had completed their six-year primary-school education, and who then successfully completed a three-year Primary Teacher Training course.

The standard qualification for secondary-school teachers is the Nigeria Certificate of Education (NCE). This is a professional qualification at tertiary level, awarded to students who are secondary school graduates under both the 6+5+3/4 or 6+3+3+4 systems, and who successfully complete a three-year professional course at a college of education. A minority of holders of this award have been trained at a university. The federal government now intends to make the NCE the minimum qualification for primary-school teachers by 1992. TCII-qualified primary-school teachers will therefore have to upgrade their qualifications or risk, ultimately, losing their jobs.

University faculties of education offer BA and BSc degrees in education, as well as the BEd degree.

Finally there are one-year professional, post-graduate and sandwich courses leading to diplomas or associateships in education, obtainable following successful completion of courses at a university or college of education.

Table 7.1 provides information on the number of primary and secondary school teachers, by qualification.

There are 34,616 state primary schools (1988–89). At secondary level, there are some 7,000 state-funded state secondary schools and 45 centrally funded federal schools. There is also a limited private sector. Universal junior secondary-school education is scheduled for introduction in 1992.

**NIGERIAN EXPERIENCE IN THE IN-SERVICE TRAINING OF TEACHERS BY DISTANCE MEANS**

Early correspondence education in Nigeria relied on courses provided by foreign correspondence colleges—notably the University Correspondence College, Wolsey Hall and the Rapid Results College—all of which were British. The development of an indigenous distance-education system was a direct response to the need to train teachers to meet the post-independence expansion in the educational service, which outstripped the capacity of teacher-training colleges, and the traditional faculties and institutes of education in the universities, to provide training opportunities to untrained and under-trained teachers. As a direct result, a number of university faculties and institutes established in-service distance-education programmes for teachers.
The first in-service education programme to be established in Nigeria was the Teachers In-service Education Programme (TISEP) established by the Ministry of Education of Northern Nigeria in 1962. The programme served the needs of the then ten northern states, and aimed to overcome the acute shortage of trained teachers in the region. It was run by the Institute of Education, Ahmadu Bello University. After a poor start, the project was relaunched with more success in 1967. Over the years it developed two main programmes.

- TISEP ‘A’, aimed at Grade II referred teachers, Grade II certificated teachers, graduates of TISEP ‘B’ and holders of the West African School Certificate, who wanted to study for their TCII
- TISEP ‘B’, aimed at Grade III referred teachers, Grade IV teachers, and untrained teachers with a minimum of three years’ teaching experience. The programme essentially substituted for the Grade III Teachers’ Certificate.

In 1976 the Institute of Education of Ahmadu Bello University launched the Nigeria Certificate in Education by correspondence programme, to serve the needs of the ten northern states. The programme was designed to upgrade TCII certificated teachers who were teaching in primary schools, and who had five years’ teaching experience.

Other programmes also existed. For example, the Primary School Supervision Course in Plateau State was set up in 1978–79 to provide Grade I teachers with the skills required to be teacher-trainers for untrained teachers,
while the Correspondence and Open Studies Unit at the University of Lagos was formally set up in 1976 to offer degrees in teacher education and in business administration, as well as in-service training courses in these areas.

Although symptomatic of interest in distance education, and of the potential of distance education to solve the ‘crisis’ in education brought about by the introduction of universal primary education (UPE), only one of these projects pre-dated the establishment of NTI. As we shall note when we come to consider the establishment of NTI, one of the problems which it faced was a dearth of indigenous expertise in distance-education methods and organisation.

ORIGINS, PROGRAMMES AND STRUCTURES OF NTI

Nigeria currently has a population of about 107 million (1987), with an annual growth rate of 3.2 per cent (1980–87). Population growth has been a major factor in the development of Nigeria ever since the country gained independence in 1960, with obvious implications for the demand and provision of education.

Since independence the demand for education has grown. In 1965 there were under one million primary-school enrollees. In 1974 over four million children were enrolled in primary schools. Faced by the continuing demand for education, the federal government proposed the introduction of free universal primary education (UPE) in 1974, and incorporated the proposal into the Third national development plan for 1975–80. UPE was introduced in 1976, in advance of any proper and systematic provision of schools and teachers to cater for the growth in enrolments, and thus at the risk of endangering the quality of the existing primary education service. In the same year, Grade I primary enrolments almost doubled, and by 1976–77 there were over 8.2 million primary-school enrolments. Primary education was made compulsory in 1979, although it was difficult to implement this, with proportionate enrolments varying between the states. In 1988 the number of primary-school enrolments was 12.2 million.

The dramatic increase in the primary-school population necessitated a corresponding increase in the size of the primary-school teaching force, from 130,000 to over 310,000. But at the same time there was an urgent need to improve the quality of the existing teaching force. A 1974 survey had revealed that 65,000 to 75,000 of the 130,000 teachers in Nigeria’s primary schools lacked the official minimum qualification—the Grade II Teacher Certificate (TCII)—required to teach at this level.

There was no possibility of the existing teacher-training system meeting this challenge. The Grade II teacher-training colleges were beset by problems. First, the quality of their intake was generally lower than other post-primary institutions. Second, their teachers were less qualified than those in secondary schools. Third, there was for many years a mismatch between what the
colleges taught and the expectations of the then external examining body, the West African Examinations Council. The result was a high failure rate, with 60–65 per cent of the annual output from the Grade II teacher-training colleges failing to pass the examination yet, because of the teacher shortage, being appointed to teaching jobs (the so-called ‘Grade II (referred) teachers’). As a direct result the number of unqualified primary-school teachers actually increased. Those who did qualify often moved on to advanced teachers’ colleges to take their NCE, thus equipping themselves to go on to higher education or to teach in secondary schools. Finally, the colleges could not cope with the expansion in their enrolments which took place between 1972 (38,000 primary-school teacher trainees) and 1976–77 (144,500 student primary-school teachers) (Wali, 1989).

The two-year period between the announcement and implementation of UPE thus saw most states embark on some form of emergency teacher-training programme, but with programmes curtailed in length—and some were of only two months duration—the net result was to add even more to the number of unqualified primary-school teachers (the number of sub-Grade II teachers rising to between 225,000 and 250,000) (Wali, 1989).

Faced with the problem of expanding and upgrading its primary-school teaching force, the federal government looked for a solution to the problem. As we have noted, Nigeria already had some experience of providing inservice education by distance means to improve the quality of the teaching force, but the magnitude of the task following the decision to introduce UPE was such that neither the universities nor the state Ministries of Education could cope with the problem. The government therefore sought other solutions, eventually accepting the recommendation of a 1975 UNESCO technical assistance mission that distance-education methods should be adopted to train teachers.

**The developing objectives of the NTI**

The government decree establishing NTI (1978) charged it among other things with ‘organising and providing programmes for the training, development, upgrading and certification of teachers’ (p. A70). Its first task, based on the initial ‘concept paper’ prepared by the Federal Ministry of Education in 1974, was:

- to develop and produce self-instructional materials which can be distributed to students by the State Ministries and their administrative arms in order to upgrade and improve the teaching competence of sub-grade II teachers; to use those materials to improve the teaching effectiveness of sub-grade II teachers; and to upgrade other categories of teachers to higher level.

(Wali, 1989, p. 5)
The methods stipulated were the most modern techniques of distance education including radio, audio tapes, films and television, supplemented by a face-to-face learning component.

Even before the signing of the government decree establishing NTI, a UNESCO educational adviser (Chief Technical Adviser) had been appointed (July 1975) to develop the project, course writers (mostly UNESCO experts) were brought together to start writing materials (November 1975), a Nigerian director-designate was appointed and took up office (April 1976), and the printing department was set up and operational by October 1977. During 1977, preliminary planning took place in respect of the delivery system, and some field surveys were also conducted in mid-year. Initial planning concentrated on the provision of a programme designed to upgrade unqualified primary-school teachers to TCII level.

The development of NTI between 1975 and 1978 was inhibited by the absence of a statutory basis for binding legal recognition. The fact that the decree establishing NTI only came into effect in April 1978 ‘contributed to a state of suspension, reluctance, uncertainty and sometimes inconsistency on the part of the NTI’s administration’ (UNDP, 1978). The absence of a decree made the position of Nigerian project staff uncertain, and this was exacerbated by their background in the civil service system, so that they found it difficult to function in a situation where they were called on to exercise professional autonomy and independent professional judgement.

The number of Nigerian staff were also far fewer than the project needed, and certain key posts (for example, registrar) remained unfilled. As a direct result the UNESCO staff were used as course writers rather than as team leaders, catalysts and trainers, and there were no Nigerian staff working alongside them. This exposed the project to significant problems when, as happened in June 1978, some of the UNESCO experts came to the end of their contract and left the Institute. Materials development was consequently slow, while the use of expatriate writers ran the added risk, mentioned in the UNDP report, that the materials would be inappropriate, given that the UNESCO consultants had no direct experience of the target population (ibid.). UNESCO’s Chief Technical Adviser resigned in April 1976, and the post was left vacant, creating another vacuum. Hence effective planning really only began following the approval of the decree establishing NTI.

Between 1978 and 1984 (that is, the elapsed time between the promulgation of the enabling decree and the start of teaching) NTI concentrated on: research into distance education and the development of policy; planning and developing the curriculum for the distance-taught TCII programme, including the production of sequencing charts and course outlines; training course writers both within Nigeria and abroad; planning and developing the TCII instructional materials; pilot testing these materials and ascertaining their suitability through the use of the preliminary materials; planning and establishing the infrastructure and other related services; and negotiating for funds.
By 1982 a limited number of preliminary materials in mathematics, English and education had been launched. The actual teaching of the TCII programme began in the 1984–85 academic year. Between 1984–85 and 1988–89 NTI offered the TCII programme as its one major academic programme. Beyond this, it also offers a mathematics conversion programme to TCII teachers. This course is designed to meet the needs of primary-school teachers who, during their pre-service training, studied arithmetic rather than mathematics. The course aims to update teachers’ knowledge to enable them to teach mathematics, in accordance with the needs of the current primary-school curriculum. Between 1984–85 and 1987–88, this programme was taken by 13,218 students.

The government’s intention is now to make the Nigeria Certificate of Education (NCE) the minimum qualification for all primary-school teachers by 1992—although full implementation is likely to take somewhat longer. NTI therefore embarked on the development of NCE materials in 1988, and began teaching the first cycle in early 1990. It hopes to have developed the materials for all four NCE cycles by 1992, and to be teaching the full NCE syllabus by 1993. At the same time it foresees its TCII programme declining in importance, and being phased out sometime in the early 1990s.

In addition to the in-service training of teachers by distance means, the Institute also does a limited amount of traditional in-service training, running short courses for teachers at its Kaduna headquarters or in its field centres. The completion of a new purpose-built residential conference centre will facilitate this greatly.

The TCII programme consists of two sets of papers: federal papers, set nationally, in English language, mathematics and education, and state (so called ‘internal’) papers set by the individual state Ministries of Education, and covering subjects such as religious studies, social studies and Nigerian languages. The three centrally set papers and two of the state-set papers (in social studies and integrated science) are examined nationally. All other papers are examined locally by the state Ministries of Education. TCII teachers have to pass eight subjects, including the five centrally examined ones, together with three state-examined ones. The state-examined papers have generally not been moderated by external bodies, an exception being the ten northern states where they are moderated by the Institute of Education, Ahmadu Bello University.

At the time NTI was established, the centrally marked papers were examined by the West African Examinations Council. In 1978, however, the government assigned the conduct of the centrally examined papers of the Grade II Teachers’ Certificate Examination to the NTI. NTI took over this responsibility in 1981. The acquisition of this responsibility had significant implications for the organisation and focus of NTI, in effect transforming it not just into a body with responsibility for distance-based teacher training, but also into an examining body. It also added to the administrative burdens which NTI had to bear at a time when it was struggling to fulfil its prime
mission—the development of in-service training courses. More recently (1988) the government has given NTI, as a national examining body, the task of conducting the interview examinations of candidates shortlisted for entry to the 45 federal secondary schools.

In 1986 the NTI gained a further responsibility, that of producing a register of post-primary-school teachers by the end of 1986, and of primary-school teachers by the middle of 1988. NTI has two large mainframe computers, and a well-staffed computer centre which is heavily involved in this work, and is often called upon to compile and process educational data on behalf of the federal Ministry of Education, state Ministries of Education, and other bodies. NTI now holds records on 338,000 (1988–89 figure) primary and 117,000 (1987 figure) post-primary teachers. NTI thus acts as a central statistical information service in respect of all teachers. It is, nevertheless, reliant on state and federal authorities as employers to provide it with the raw data which forms the basis of this service.

Finally, NTI, in common with other Nigerian institutions, suffers from shortages of funds. As a direct result, the institution has sought ways and means of increasing its revenues from other sources. A conference centre capable of accommodating about 80 people is in the process of being furnished and, once operational, will meet NTI’s internal needs (notably for running teacher workshops and conferences), as well as generating income for the Institute. The Institute operates a model primary school which serves the needs of children of NTI employees and of the neighbourhood, and is used as a demonstration school for teachers on in-service training courses offered through the conference centre. The Institute also runs a farm on its extensive 2,000-acre site. The computer centre runs external training courses, as well as compiling and processing data for other bodies. The audiovisual and photographic department and the typesetting department also undertake work for external agencies, although these do not appear to impinge on NTI’s primary role. The 1988 annual report called for an intensification of the drive to raise revenue from external sources.

As this section makes clear, NTI has a variety of tasks and is diversifying its effort into fields which are unrelated to distance education. Although there is no indication that NTI’s mission to provide in-service teacher training by distance means has suffered, diversification has meant that NTI can no longer be described as having a single main objective—that of training teachers at a distance.

Objectives of NTI’s in-service teacher-education programmes

NTI was charged not just with the development, production and distribution of correspondence materials, but with the development of in-service education for primary-school teachers, aimed at their professional development as
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Teachers. The White paper on national policy in education (Federal Republic, 1977) clearly stated:

Teacher education programmes will be structured to equip teachers for the effective performance of their duties. The following Institutions will give the required professional training: …(v) National Teachers’ Institute.

Although the achievement of this objective implies the need to mix distance-education methods with face-to-face training, the original NTI project, while recognising the goal of professional training, envisaged ‘a type of distance education which relies heavily on self-instructional materials, some support from audio-visual materials, and minimal use of tutors to work with students through face-to-face contact’ (UNDP, 1978). The UNDP report went on:

Experience to date has shown that this way of implementing distance education is inadequate in the Nigerian context. The one field test of [NTI] materials (English language at Kaduna Girls Teachers College) revealed that, even for the ablest students in the group, some amount of tutor assistance was necessary in getting students to use the materials and complete the exercises successfully; some tutor assistance was discovered to be essential since students had all come from a highly teacher-centred school experience.

(UNDP, 1978, p. 15)

The UNDP team noted that all the state Ministries of Education visited by members of the team confirmed the value of face-to-face tutoring as a component of equal importance to that of self-instructional teaching materials in the system, a conclusion which had also emerged from a 1977 survey of state Ministries of Education conducted by NTI. These views led NTI to encourage the states to establish study centres where students could go regularly for advice and tuition.

This gives a context to the immediate priorities and challenges which faced NTI in developing the curriculum for its TCII programme. NTI had to identify and clarify the professional requirements of teachers and teaching, and to design and mount programmes which achieve the objectives of teacher improvements (Lassa, 1983). These objectives had to be achieved through the development of self-instructional materials and an effective delivery and student support system.

Achieving these objectives was another matter. One of the problems which NTI faces is that, because the states have local responsibility for educational provision, their needs are not necessarily the same. Thus the UNDP report (1978) noted that some of the states only accepted lower-secondary-school graduates as primary-school teachers, while others accepted primary-school graduates. As a result NTI could not assume that students embarking on its
courses had a common knowledge base, or even similar needs in respect of the courses they needed to take.

Another problem was that, as we shall see when we come to consider its structure, NTI had to rely on the individual state Ministries of Education to establish delivery and support systems which, in respect of state-directed and examined papers, would complement and support its centrally developed teaching materials.

Finally, two other crucial issues need to be considered. The first is the nature of the student support services, and the means to ensure its quality. The second is the nature of the NTI’s in-service programmes, and in particular the extent to which they are academic programmes based on correspondence materials, or programmes designed to improve teachers’ classroom practice based on reliable observation of that practice.

**The TCII curriculum and examination**

Responsibility for the curriculum rests with the federal Ministry of Education, which provides curriculum guides for primary and secondary education, including teacher training. However, the federal ministry commissions its parastatal organisations to produce these guides on its behalf. For example, in 1986 it commissioned the NTI to review and develop curriculum guidelines for teachers’ colleges in 25 subject areas, including those subjects examined by the state Ministries of Education (see Table 7.2). The exercise was carried out as a means of standardising what is taught in the teachers’ colleges nationwide. An implication of this is that all TCII programmes use the same curriculum as NTI’s TCII programme.

As explained above, TCII candidates have to take a mixture of centrally set papers and papers set by the state Ministries of Education. Both NTI and the state ministries examine TCII candidates and jointly issue the TCII certificate to those who are successful. National education standards are discussed at two levels in Nigeria. These are: the Joint Consultative Committee (JCC), where technical staff from the federal Ministry of Education and the state Ministries of Education, together with representatives of the institutions, meet to discuss issues and make decisions on education; and the National Council on Education (NCE), presided over by the Minister of Education and attended by all the state Commissioners of Education and the Directors General. This is the highest decision-making body on educational matters in Nigeria. All major educational issues such as programmes for various certificates in education are resolved by these two bodies, the JCC recommending the policies which are subsequently approved or ratified by the NCE.

At present, a candidate for the TCII must pass the following compulsory subjects set by the NTI: English language (essay, lexis and structure; oral English); mathematics; education (principles and practice; methods of teaching English; methods of teaching mathematics). In addition, a candidate
must pass either integrated science or social studies and any other electives set by the states or the NTI, up to a maximum of eight (pre-1990) or seven (post-1990) subjects including practical teaching. The three compulsory subjects, together with integrated science and social studies, are examined by NTI. The other subjects are examined by the states.

Subjects covered by NTI’s TCII programme

NTI’s TCII programme covers only the three compulsory centrally set papers in the TCII examination which NTI inherited from the West African Examinations Council in 1982: English language, mathematics and education. Each of these subjects is studied over four cycles. In each cycle, in each subject, students are expected to study 12 modules, each comprising six units. A unit takes from 60 to 90 minutes to study and is thus roughly equivalent to a lesson in a traditional system. The total programme in each subject thus comprises:

$$4 \text{ cycles} = 48 \text{ modules} = 288 \text{ units} = 288 \text{ to } 432 \text{ hours}$$

In any one subject, students are expected to progress at the rate of three units per week, so that all four cycles can be completed, at least in theory, in 18
In-service initial training of teachers

months. They are expected to complete the programme within four years. The three subjects are studied concurrently, so that the average weekly student workload is planned to be nine to 14 hours.

The objectives of the TCII course are both subject-skills- and practice-related. The English language syllabus, for example, aims to equip TCII graduates with a satisfactory level of proficiency in English language, to promote the skills of spoken English, and to stimulate an interest in reading as a pleasurable activity (Federal Ministry of Education, 1986).

NTI clearly makes some effort to try to ensure that not only is the teacher’s knowledge of the subject deepened but also his or her other classroom practice is changed, although in general the materials are heavily weighted towards academic and subject-related content, and away from practice. Thus the course book for Module 1 of the first cycle on English language methods (for the TCII examination) contains suggestions on how teachers can prepare a first-year class, activities which the teacher can get the children to do, hints on methodologies (for example, ‘words are best taught in sentences’), suggested exercises which children might undertake, ‘games’ which children might play to underpin learning (for example, taking children into the playground and getting them to fit their actions to the commands ‘run’, ‘walk’, ‘hop’, ‘jump’) and ways of encouraging dialogue between the children (National Teachers’ Institute, 1985).

Are such practices taken on board by the teachers? Not surprisingly, individual teachers, when questioned by us, said that they felt the programme was having an effect on their classroom practice as well as their knowledge, but the extent to which this is the case in practice is unclear. This is an area where more significant longitudinal research could well be carried out to try to identify the extent and nature of changes in the teachers’ behaviour. There is, however, a great difference between knowing what one is expected to do in practice, and doing it. The only way of judging the effectiveness of the TCII programme in respect of practice is to look at changes in teachers’ classroom practice, and this we were unable to do.

NTI’s NCE programme

The NCE programme is now being developed by NTI in collaboration with some of the universities. The programme, which was approved by the National Council on Education on recommendation of the Joint Consultative Committee, is regarded as being on an equal footing with other NCE programmes run by colleges of education or university institutes of education. Unlike the TCII, there are no state or federal papers in this programme. NTI is fully responsible for the conduct of the programme. However, the co-operating universities are always consulted for the purposes of maintaining academic standards, and they are also expected to vet and moderate the examination papers with standards in mind.
The following subjects (with the number of modules indicated) are offered:

- compulsory courses in: education (36 modules); primary education studies (a course covering the full primary curriculum of language arts, primary mathematics, primary science, primary social studies, primary physical and health education, and primary cultural and creative arts) (50 modules); practical teaching and field trips (four weeks per year); use of English and communication skills (four modules)
- one course drawn from the following teaching subject options: English, mathematics, integrated science, social studies, physical and health education, and cultural and creative arts (36 modules).

Each module comprises ten units requiring about one and a half hours’ study.

The programme is organised in four cycles corresponding to four calendar years, with teaching divided into three terms of 13 weeks’ duration. During term time students are expected to do a minimum of two hours’ study per day or \(2 \times 7 \times 39 = 546\) hours in the year. In addition, students are expected to spend ten of the 13 weeks of holiday period on the course-related activities of practicals and field trips (four weeks), revision tutorials (four weeks), and tests and examinations (two weeks). Practicals and field trips are organised by NTI and assessed through continuous assessment and final examinations. These practicals and field trips are organised during the intensive contact sessions held during holiday periods when the students can assemble at selected centres. All the practicals are related to the course content of the subject concerned.

The management and supervision of the NCE programme is the responsibility of NTI. However, NTI uses already established facilities and services within each state to provide instruction for the teacher-students. Thus it employs competent local graduate part-time staff to undertake the various teaching and supervisory tasks in the study centres (for example, tutorials, practicals, counselling sessions, and so on).

Course objectives emphasise the acquisition both of academic knowledge and of teaching skills (and the relevant theoretical background) to enable students to teach effectively. The compulsory primary education studies course aims to make students develop the basic skills and attitudes that will enable them to teach the primary-school curriculum effectively. The education course aims among other things to help students acquire the basic tools with which to tackle identified educational problems, to select from a number of possible solutions to problems, and to acquire adequate intellectual and professional skills to enable them to teach effectively. The integrated science course aims to help students acquire the important skills and competencies which will enable them to teach the subject (National Teachers’ Institute, 1989).

To qualify for admission to the examinations in subjects that have practicals (physical education, integrated science, and the oral English component of English language) students must have attained at least 70 per cent attendance.
in practical sessions. Up to 30 per cent absence is waived only when such absences are approved by NTI. Failure in the practical element results in failure in the course, even when the overall aggregate mark gained in the written theory papers and the assessed practice sessions indicates a pass. The practical papers are based on tests in the cognitive and psychomotor domains, in which candidates are assessed on their performance of the tasks set them. In English language, for example, candidates are asked to undertake listening tasks and to speak, using cassettes, and their proficiency is subsequently assessed by examiners.

In addition, supervised teaching practice takes place at specified times during the second and fourth cycles, when students are visited in their schools for the purpose of supervision, assessment and award of grades which will contribute to their final marks in teaching practice. These supervised teaching practices will test the students’ practical teaching skills and abilities. During these periods, they will be tested in the content area of the various subjects they teach, and also in the way they teach the pupils. Field centre supervisors are expected to pay regular visits to students at their place of work, to watch them teach, correct them and generally assess their ability to put into practice what they have learnt in the courses. These visits also prepare the students for their final teaching practice. Supervisors are expected to make a quarterly report on each student to the field centre. How these plans will work out in practice as the NCE programme is implemented remains to be seen.

The target audience

Initially, NTI’s target audience was teachers who lacked the TCII teaching qualification. These included teachers who had obtained the TCIII qualification (on successful completion of a now defunct three-year post-primary teacher-training course); those who had taken a two-year emergency-trained teachers’ course; primary-school leavers with less than one year’s training; and TCII candidates who had been referred from earlier attempts at the examination. The number of teachers with qualifications below TCII level has now fallen significantly to about 78,000.

The government is now looking to upgrade TCII teachers to NCE level. About 291,000 teachers with Grade II Teachers’ Certificate in 1988 might potentially be upgraded. It is expected that teachers who fail to make the grade will be weeded out of the system. As a direct result, NTI expects to see enrolments increase significantly over the next few years.

All NTI NCE candidates must be serving teachers. The minimum academic requirements for entry to the programme are: either TCII/National Teachers’ Certificate with merit or credit 2 (B2) in those subjects including the teaching subject the candidate intends to study, or, alternatively, TCII certificate with at least eight years of post-qualification teaching experience; or an Associate Certificate in Education (or its equivalent). This is gained by teachers who
have the TCII examination, together with several years of experience, who then embark on a one-year training course at a college of education. In addition, candidates offering any of the science subjects as a teaching subject must possess at least a pass in mathematics, while those offering English as a teaching subject must possess ‘O’ level English language and/or literature, or a TCII credit in English language, or a TCII pass in English language and a credit in English literature.

The number of students registered on each of NTI’s programmes is shown in Table 7.3.

At present NTI has no demographic data on its students, but three case studies based on interviews conducted with NTI students in Kaduna illustrate the diversity of students taking the new NCE programme at a distance.

Case 1 is a 22-year-old unmarried woman who obtained her First Leaving Certificate following six years’ primary-school education. She then went to secondary school, gaining her ‘O’ levels through the West African Examinations Council. She then went on to a teachers’ college, obtaining her Teacher’s Certificate Grade II at the age of 18. Now a classroom teacher in a private primary school, she embarked on NTI’s NCE programme as a first step in her ambition to gain a university degree. Her main teaching subject was integrated science. She had become aware of NTI’s NCE programme through advertisements in the press.

Case 2 is a 40-year-old male teacher. He attended primary school between the ages often and 17, gaining his First Leaving Certificate. He then moved on to take a primary-school teacher-training course, obtaining his TCII qualification at the age of 22. Since then he has been teaching in primary schools. His ambition was to obtain his NCE ahead of the government’s introduction in 1992 of the NCE as the minimum acceptable teaching qualification for primary-school teachers, and also, more generally, to further his education. His main subject was cultural and creative arts. Like the previous case, he became aware of NTI’s programme through advertisements in the press, and also on television.
Case 3 is a 44-year-old male teacher. He attended primary school from the age of six to 13, obtaining his First Leaving Certificate at the age of 13. He then began teaching in a primary school as a pupil-teacher. At the age of 15 or 16 he took and passed his Teacher’s Certificate Grade III. When he was 29, he embarked on an in-service teacher-training course at Ahmadu Bello University, obtaining his TCII at the age of 31. His main subject is social sciences. He found out about NTI’s NCE programme through a circular from his local education authority, and saw it as a way of gaining further knowledge about his profession.

Students appear to be motivated to take the programme by a number of factors:

- a desire to upgrade themselves to the minimum standard needed by primary-school teachers, thus preserving their jobs
- to gain a qualification which is a stepping stone to higher-level studies or to jobs in secondary as opposed to primary schools
- to gain a higher grade and hence more money and status. The salary for a TCII teacher starts at Grade 5, whereas that for a teacher with NCE starts at Grade 7. However, TCII teachers with several years’ experience of teaching may already be on Grade 7 or higher level salaries, so the financial impact of upgrading may not be too great, at least initially.

**NTI’s organisational structure**

NTI is a parastatal organisation funded direct by the federal Ministry of Education. In Nigeria responsibility for the provision of primary and secondary education rests with the various state Ministries of Education, which are responsible for hiring teachers in the public sector. The NTI is conscious, given this situation, of the need to ensure active consultation between it and the states’ educational authorities. To this end, the state Ministries of Education each have a representative on the NTI Council, and are practically involved in the organisation and management of the delivery system. NTI also has a state office in each state capital. The state coordinators in these offices are recommended for employment by the home state Ministry of Education.

The NTI Council is the Institute’s supreme governing body, and its Director reports to it. However, the federal Commissioner of Education may ‘give to the Council directions of a general character or relating generally to matters of policy with regard to the exercise by the Council of its functions…and it shall be the duty of the Council to comply with such directions’ (Federal Government, 1978, Clause 15). The current organisational structure is shown in Figure 7.2.
The distance-learning system is essentially driven by the Professional and field operations division, using production facilities within the executive arm of the Directorate, with monitoring and evaluation carried out by the Planning, research and statistics division. The Examinations division organises the examination of NTI’s TCII candidates along with those other examinations falling under NTI’s jurisdiction. Organs of the Directorate, together with the Finance and the Administration and personnel divisions, support the Institute’s distance-learning system along with its other pro-grammes. Delivery is organised through the field centres and their dependent study centres.

The field centres serve as the administrative arm of the NTI within the individual states. Each field centre is headed by a co-ordinator, who is appointed on recommendation of the relevant state Ministry of Education.
Below the field centres are the study centres, headed by a supervisor. The study centres are the main focus of tutorial and student support services.

**NTI’s distance-learning system**

*Media choice*

NTI uses correspondence teaching methods supported by face-to-face teaching. Although the Institute has for many years planned to use other media in support of its distance-education programmes, including television, videocassettes, radio and audiocassettes, shortage of money has meant that the output of audiovisual materials has been stockpiled pending the equipping of study centres with receivers and cassette players. While the audio-visual materials have not been used to support distance learners, they have been used in support of relatively short-term, face-to-face in-service training courses offered by NTI to small numbers of teachers; institutional advertising and publicity; children’s programmes; and NTI’s own primary school. Negotiations are in hand with the Federal Radio Corporation of Nigeria for air time in 1990, and similar negotiations with the Nigerian Television Authority are mooted, but it is currently unclear whether the NTI will be able to afford to buy the air time. Television, if and when used, will be broadcast via satellite, so that national reception is assured. The use of audiocassettes for the teaching of oral English in the TCII syllabus is also being piloted using the language laboratory on small courses run at NTI’s headquarters.

*Course development and production*

The Institute’s initial courses were prepared with the help of UNESCO experts, but responsibility for the preparation of materials quickly passed to Nigerians. The curriculum for the TCII and NCE programmes was based on syllabi prepared by NTI and approved by the Joint Consultative Committee on Education (a committee of technical experts) prior to approval by the National Council on Education (the supreme federal decision-making body on educational matters). The course texts (units) are written by resident course writers as well as consultants drawn from other institutions (universities, colleges of education, teachers’ colleges, and so on). The process of writing is accomplished in workshops, where the various unit authors, drawn from other higher-education institutions and a number of resident NTI staff, come together. NTI personnel provide the guidelines and ensure that the work produced by authors is up to the expected standard. All course writers have to pass a written test before they are hired, in order to assure NTI that they are capable of doing the job NTI expects of them. Authors normally write about
five units on any one course. Where an author’s work is not up to standard, it is reworked by a member of NTI’s staff. Responsibility for developing the curriculum and designing and developing the course materials rests with the professional operations section.

The written materials are typeset by the typesetting section, which is also responsible for paste-up, at which stage illustrations (graphic design section) are incorporated into the texts. The audiovisual and photographic section provides photographs which are used by the graphic designers as guides for drawings. Proofs are checked by the professional operations section, which uses some contract editors for this purpose. The internal printing department prints some, but not all, of NTI’s course materials. The volume of materials is too large for the capacity of the existing and ageing print machinery (the latter now works well below its original capacity, owing to breakdowns), and external printers take on the excess load. Once printed, the materials are dispatched by lorry to the field centres.

Course delivery

The field centres, of which there are 22 (one in each state of the federation and one in the federal capital territory of Abuja), are at the heart of NTI’s delivery system. The field centres are organisationally located within the professional and field service division. They typically have from ten to 17 administrative and ancillary staff.

Each field centre has a co-ordinator whose main function is to register and document students, distribute and sell course materials, identify possible-study centre sites, recommend the appointment of study-centre supervisors and course tutors, supervise study centres, and pay supervisors and course tutors.

Nationally there were 100 study centres supporting TCII students (1989) (with the fall in student numbers on this programme, down from 285 in 1988), and 132 supporting NCE students (1990). Study centres are set up wherever there are groups of 100 or more students, and are located in both urban and rural settings. However, NTI recognises that there are limits on the distances students can travel (and on the time and money they have) to reach study centres. To ease transportation problems, satellite study centres have been set up to cater for students in areas where there are not enough students to set up a normal study centre. These satellite centres are supervised by the officer in charge of the nearest study centre.

The students meet with their tutors and fellow students at study centres. Each study centre is headed by a supervisor who is expected to plan the activities of the centre, timetable contact sessions, brief course tutors and students at the beginning of the academic year, collect registration materials from the students, vet these and return them to NTI’s headquarters, meet course tutors regularly and ensure that the plan of activities is being adhered to, supervise both tutors’ and students’ work at the study centre, keep
appropriate records and write progress reports as required, ensure that students have copies of the course material and do all their assignments, liaising with the co-ordinator on the distribution of books, and serve as the main point of contact between the field centre and the study centre.

Course tutors are recruited by NTI. At NCE level the minimum qualification is a first degree in the relevant subject area. Hired on a part-time basis, they are paid 12 naira per contact hour. Their duties are to offer tutorials on NTI course materials, ensure that students who have contact sessions have read their course books and do all their assignments, help students with their studies, set and mark students’ assignments and tests, keep basic records on each student, and ensure that the plan of study-centre activities with which they are involved takes place to timetable. Course tutors both tutor and counsel their students, give mini-lectures picking up points in the texts, encourage discussions, correct tutor-marked assignments, and administer review tests and end of cycle tests.

In each study centre one tutor is appointed in each subject area per 100 students. However, the number of students following a particular course is generally less than 100, so that the tutor-student ratio in any subject, at least at TCII level, is nearer 1:50. Students have two hours of tutorial contact in each subject area they are enrolled in every Saturday during term time. Attendance at study centres is not compulsory, although students are encouraged to attend.

Students studying the NCE syllabus at the Kaduna study centre said that they put in a considerable number of hours of private study each week and attend tutorials regularly (of which they are appreciative), but there is no independent data to confirm this statement. They also indicated great satisfaction with the course materials which they uniformly praised as easy to read and conceptually clear.

Training

NTI has prepared a series of guidance and training notes for those who work in its distance-learning system. Among these are guides for course writers, supervisors and course tutors, and prospective students.

The guidance notes to course writers stress the loneliness of the distance students; the other commitments which they have and hence the limited time available for studying; the lack of facilities and resources available to students; and the interruptions which distance students suffer. In guidance notes, course writers are told that, to help students overcome these difficulties, texts should be:

- self-instructional, using clear, simple language, and be capable of mastery by students working on their own
- self-contained, and not require recourse to textbooks and resource persons
self-paced, that is, properly sequenced so that students proceed from one
lesson to another steadily, logically and at their own pace
self-evaluating, containing self-assessment questions to provide feedback
on progress and understanding.

Writers are told that they have a responsibility to ensure that their facts are
correct, up-to-date, to the point, have clear and explicit objectives, are relevant
to the learners’ needs, capable of being put to immediate use by the adult
learner in his or her own situation, and use techniques which reinforce learning
and ensure that skills are acquired quickly through frequent repetition. Any
techniques which provide and maintain interest and generate motivation are
to be used. In particular, writers are to avoid rote learning and make students
think for themselves (National Teachers’ Institute, 1980).

The guidelines for supervisors and tutors are less explicit, but stress the
need for course tutors to ensure that students make effective use of the
materials, to help them with learning, and to counsel them (National Teachers’
Institute, n.d.).

OUTCOMES
The magnitude of the task of upgrading the number of teachers required to
implement UPE, and the new task of raising TCII teachers to NCE level, is
such that distance education was perceived to be the only means possible.
How successful has it been?

The advantages of distance teaching
The use of distance-education methods was the only way in which a sustained
long-term programme of in-service teacher training could be provided and
not disrupt classroom teaching by requiring lengthy absences of teachers on
traditional in-service training courses.

One of the criticisms of distance education is that while it is an excellent
vehicle for teaching knowledge of a subject (cognitive domain) it is not so
good at teaching skills (psychomotor domain) and attitudes. NTI has sought
to structure its programmes in ways which emphasise both theory and practice.
The parallel emphasis on the assessment of teaching practice provides some
assurance that practical teaching skills are being addressed, but the impact on
the actual classroom behaviour of the teachers is an area where further
research is needed.

Drop-out and student progress
A fair proportion of students drop out of the TCII programme between
registration and the examination. One cause of this is that a considerable
number of sub-Grade II teachers have lost their jobs as the result of government pruning of sub-standard teachers in state schools. With the loss of their jobs, these teachers have been unable to afford the fees and the cost of the materials, and they have consequently withdrawn (Bako, 1989), but there is no quantified data on the proportion who drop out for this reason. No statistical data on drop-out in the TCII programme is available. The fees paid by students are shown in Table 7.4.

Table 7.5 shows the proportion of students registered in 1986–87 who opted to take the examination that year. Students are given four years to sit the examination, hence the figures do not in themselves reflect drop-out rates, but do give some indication of the rate of student progress.

**Examination pass rates**

NTI’s TCII students take the same public examination as other TCII candidates who have received initial or in-service training by traditional means (that is, through short in-service courses). The fact that NTI’s students take the same examination has been an important factor in establishing the credibility of the programme both with teachers, with the state Ministries of Education, and in general.

Examination results include both internal students (those who have studied the TCII programme at a regular teacher-training college) and external students who have studied the course as part of an in-service training scheme, including both NTI’s distance-learning programme, and other in-service training courses offered in traditional institutions. NTI’s students comprise the majority of external students.

Table 7.6 provides data on the comparative success of internal and external students. The first year in which NTI external TCII students began to graduate...
was 1984. The ratio of the external pass rate to the internal pass rate suggests that in most years the external system was more efficient than the internal.
The marking procedures and hence the figures for external examinees purposely do not discriminate between NTI’s students and the external students of other institutions, so as to avoid any likelihood that NTI should favour its own students on the centrally examined papers that it marks. As a direct result, it is not possible without undertaking a special manual exercise for each year to evaluate the relative efficiency of NTI against other providers of in-service teacher training at TCII level. Fortunately, some data exist on the pass rates of NTI TCII students in 1987 and 1988 (see Tables 7.7 and 7.8). Table 7.7 suggests that NTI is at least as effective as the internal in-service training scheme. Table 7.8 shows the 1989 examination results for TCII in seven states, broken down by subject.

The results for education are surprising. The examination comprises three papers: principles and practice of education, methods of teaching English language, and methods of teaching mathematics. The disappointing results in

### Table 7.7 NTI’s TCII programme, 1987–88: examination passes as percentage of those who sat the examination

<table>
<thead>
<tr>
<th>State</th>
<th>1987</th>
<th>% passed</th>
<th>1988</th>
<th>% passed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. sat exam</td>
<td></td>
<td>No. sat exam</td>
<td></td>
</tr>
<tr>
<td>Abuja</td>
<td>267</td>
<td>n/a</td>
<td>70</td>
<td>17.1</td>
</tr>
<tr>
<td>Akwa Ibom*</td>
<td>n/a</td>
<td>n/a</td>
<td>801</td>
<td>34.1</td>
</tr>
<tr>
<td>Anambra</td>
<td>2,717</td>
<td>31.0</td>
<td>2,158</td>
<td>52.1</td>
</tr>
<tr>
<td>Bauchi</td>
<td>1,197</td>
<td>28.7</td>
<td>2,957</td>
<td>52.1</td>
</tr>
<tr>
<td>Bendel</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Benue</td>
<td>1,622</td>
<td>29.8</td>
<td>3,090</td>
<td>38.6</td>
</tr>
<tr>
<td>Borno</td>
<td>169</td>
<td>9.5</td>
<td>89</td>
<td>33.7</td>
</tr>
<tr>
<td>Cross River</td>
<td>228</td>
<td>29.8</td>
<td>442</td>
<td>45.0</td>
</tr>
<tr>
<td>Gongola</td>
<td>637</td>
<td>25.7</td>
<td>620</td>
<td>21.1</td>
</tr>
<tr>
<td>Imo</td>
<td>652</td>
<td>42.9</td>
<td>570</td>
<td>39.4</td>
</tr>
<tr>
<td>Kaduna</td>
<td>3,621</td>
<td>37.2</td>
<td>373</td>
<td>30.2</td>
</tr>
<tr>
<td>Kano</td>
<td>2,752</td>
<td>16.5</td>
<td>2,964</td>
<td>31.4</td>
</tr>
<tr>
<td>Katsina*</td>
<td>n/a</td>
<td>n/a</td>
<td>894</td>
<td>13.9</td>
</tr>
<tr>
<td>Kwarra</td>
<td>1,965</td>
<td>26.8</td>
<td>1,792</td>
<td>32.8</td>
</tr>
<tr>
<td>Lagos</td>
<td>894</td>
<td>26.8</td>
<td>1,589</td>
<td>26.4</td>
</tr>
<tr>
<td>Niger</td>
<td>596</td>
<td>12.1</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Ogun</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Ondo</td>
<td>462</td>
<td>19.7</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Oyo</td>
<td>498</td>
<td>42.0</td>
<td>82</td>
<td>35.4</td>
</tr>
<tr>
<td>Plateau</td>
<td>3,314</td>
<td>24.7</td>
<td>5,065</td>
<td>41.0</td>
</tr>
<tr>
<td>Rivers</td>
<td>770</td>
<td>30.3</td>
<td>810</td>
<td>22.2</td>
</tr>
<tr>
<td>Sokoto</td>
<td>333</td>
<td>11.1</td>
<td>1,977</td>
<td>24.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>22,694</td>
<td>30.3</td>
<td>26,343</td>
<td>24.7</td>
</tr>
</tbody>
</table>

*Source: NTI professional operations and examinations division

*Note*

a. Akwa Ibom and Katsina States were created in 1987, the former out of Cross River, the latter out of Kaduna State.
education are caused by students’ failure in the two methodological papers. This has interesting implications when we come to consider the effectiveness of NTI’s courses in teaching methodology, and in particular the extent to which the role model of teaching which students experience at their Saturday tutorials (serried rows of desks with the student-teachers facing the teacher-instructor) is incorporated into their own teaching practice in their schools, and therefore the extent to which there is a conflict between the theory being taught in the units and the practice of NTI tutors. We have noted above the apparent intent of the TCII programme to change the classroom methodologies of the teachers and make the children learn through actions (for example, suit their actions to the appropriate English word), but given the size of primary-school classes in Nigeria, one wonders how feasible it is for teachers to move from a traditional mode (in which children passively receive, generally in silence, the teachers’ communicated wisdom) to a more progressive methodology in which, under the influence of psychological theory and research (notably Piaget’s), it is argued that children learn best when they are actively involved with the subject matter. This whole area is one where further research is needed if we are to understand the impact of NTI on teachers’ classroom activities.

### Impact on other agencies

NTI was a major structural innovation in the provision of in-service teacher education in Nigeria, and remains the most significant provider of distance-education courses to date. As such it has itself been in the forefront of changes in educational practice in Nigeria. NTI knows that its materials—if not its teaching methods—have been adopted by other teacher-training institutions in Nigeria, and that individual students studying at other institutions purchase its materials. The handful of NTI students interviewed by the authors during the writing of this study without exception praised the quality of NTI’s written materials, describing

<table>
<thead>
<tr>
<th>Subject</th>
<th>No. sat exam</th>
<th>No. passed</th>
<th>% passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>518</td>
<td>315</td>
<td>60.8</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>309</td>
<td>127</td>
<td>41.1</td>
</tr>
<tr>
<td>Mathematics</td>
<td>419</td>
<td>204</td>
<td>48.7</td>
</tr>
<tr>
<td>Education</td>
<td>473</td>
<td>159</td>
<td>33.6</td>
</tr>
<tr>
<td>Integrated science</td>
<td>96</td>
<td>40</td>
<td>41.7</td>
</tr>
<tr>
<td>Social studies</td>
<td>213</td>
<td>97</td>
<td>45.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,028</strong></td>
<td><strong>942</strong></td>
<td><strong>46.4</strong></td>
</tr>
</tbody>
</table>
them as ‘simple and understandable’, ‘very nice...very clear and understandable’, ‘explicit...easy to go through’, and so on.

It would appear that NTI is regarded as a significant publisher of course text books for other institutions and their students, but it is unclear what the actual extent of usage of NTI’s texts is.

COSTS

The costing methodology employed in this study is based on Orivel (1987), modified to suit the data available.

NTI’s budgetary and accounting system reflects traditional line items (salaries, expenses including travel, repairs and maintenance, capital costs, bank charges, and so on) as well as examination, educational and administrative expenses. The accounts are analysed by department, although departmental budgets do not exist. The system does not reflect activity costs by programme. In order to translate the accounting information on operating costs into activity costs, a number of crude assumptions had to be made, and the analysis that follows must be seen in this light. As far as capital costs are concerned, the data available cannot be related to particular activities. The figures reflect cost at date of purchase rather than present value, and the data are therefore somewhat difficult to deal with. Much of the equipment was purchased some time ago and is now older than any reasonable amortisation period, and hence has no residual economic value. However, it is still working, and some account probably needs to be taken of its value.

Operating costs

Table 7.9 provides information on the 1989 direct operating costs of NTI’s distance-learning system.

The costs of the audiovisual department and photographic department were excluded. Although a proportion of their costs are related to the distance-education system, this is not very significant, and the fact that the distance-learning materials are produced but not distributed seems to warrant this exclusion. Equally, it was not possible to identify the costs of overheads and apportion these between the distance-learning and other programmes. However, these are unlikely to inflate costs by more than ten to 15 per cent.

Capital costs

So far as capital costs are concerned, the costs of these (excluding audio visual and photographic equipment) were estimated to be as shown in Table 7.10.
The majority of the equipment is now out of its amortisation period, and hence might be written off as an economic cost to the distance-learning system. However, if we take a 12-year amortisation period for plant, machinery, furnishings, equipment and vehicles, a 20-year amortisation period for library books, and a 50-year period for buildings and land, and if we assume an interest rate of ten per cent, then the amortised value of the capital

\[\text{ amortised value = \text{capital} \times \left(\frac{1}{1 + \text{interest rate}}\right) \times \frac{\text{amortisation period}}{12} \times \text{capital} \times \left(\frac{1}{1 + \text{interest rate}}\right) \times \frac{\text{amortisation period}}{20} \times \text{capital} \times \left(\frac{1}{1 + \text{interest rate}}\right) \times \frac{\text{amortisation period}}{50}\]
In-service initial training of teachers

Table 7.10 Capital costs attributable to NTI distance-education programme (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Amortisation period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Plant/machinery (generators)</td>
<td>3,315,937</td>
<td>4</td>
</tr>
<tr>
<td>Furnishing/equipment</td>
<td>4,114,967</td>
<td>4</td>
</tr>
<tr>
<td>Vehicles</td>
<td>1,121,290</td>
<td>10</td>
</tr>
<tr>
<td>Library books</td>
<td>56,335</td>
<td>10</td>
</tr>
<tr>
<td>2 Building/land</td>
<td>22,713,942</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: NTI finance division

Table 7.11 Annualised capital costs of NTI distance-education programme (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Annualisation factor</th>
<th>Annualised value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant/machinery</td>
<td>0.141</td>
<td>467,547</td>
</tr>
<tr>
<td>Furnishing/equipment</td>
<td>0.141</td>
<td>580,210</td>
</tr>
<tr>
<td>Vehicles</td>
<td>0.141</td>
<td>17,102</td>
</tr>
<tr>
<td>Library books</td>
<td>0.116</td>
<td>6,535</td>
</tr>
<tr>
<td>Building/land</td>
<td>0.101</td>
<td>2,294,108</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>3,365,502</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($443,175)</td>
</tr>
</tbody>
</table>

Investment in NTI is as shown in Table 7.11, which suggests amortised capital costs of N3,365,502 ($443,175) per year.

However, it is clear that the cost of once again capitalising the NTI would be very high, particularly given the mid-1990 rate of exchange (US $1.00 = N7.90; UK £1.00 = N13.00) and the reliance on imported equipment. This is particularly true of the equipment in the printing section, and the audiovisual and photographic section.

Cost structure

The cost structure of NTI’s distance-learning programme comprises fixed costs of N7,063,387 ($930,119) comprising capital costs of N3,365,502 together with operating costs of N3,697,885, with variable costs of N1,631,384 ($214,823). The cost functions of the institution, ignoring apportioned administrative overheads, which would add ten to 15 per cent to operating costs, are as follows:
Variable costs  = \( \frac{\text{Total variable cost} = \text{N1,631,384}}{\text{No. of students} = 20,237} = \text{N80.61} \)

Total costs  = Fixed costs + Variable costs × no. of students
= \( \text{N7,063,387} + (\text{N80.61} \times 20,237) \)
= \( \$930,119 + (10.61 \times 20,237) \)
= \( \text{N8,694,692} ($1,144,834) \)

Average cost  = \( \frac{\text{Total cost} = \text{N8,694,692} = \text{N429.64 ($56.58)}}{\text{No. of students} = 20,237} \)

Marginal cost  = Variable cost  = N80.61 ($10.61)

Theoretical TCII:
Graduate cost  = Average cost × time theoretically necessary to produce a graduate (in years)
= \( \text{N429.64} \times 1.5 = \text{N644.46 ($84.86)} \)

Actual TCII:
Graduate cost  = Average cost × average time taken to graduate Assume 42% of registered students sit exam, and 27% of those who sit pass, the actual graduate cost is \( \text{N8,694,692 ÷ (20,237 × 0.42 × 0.27)} \)
= 3,788 ($498.81)

CONCLUSIONS

The National Teachers’ Institute was established to deal with a particular problem—the upgrading of in-service teachers in Nigeria. Over the years it has played a significant role in the development of course materials, and hence in the improvement of the quality of in-service teacher training throughout Nigeria. The Institute seeks not only to increase the knowledge-base of students, but also to improve their classroom practice, but it is not clear to what extent it does the latter. Indeed, the overall emphasis in the curriculum remains academic rather than practice-orientated.

Very significant numbers of students have enrolled on the TCII programme, and the demand for the NCE programme, launched in 1990, is known to be significant (see Table 7.3). The pass rate of those students who do sit the examination varies significantly from state to state, but in the two years for which figures are available, the pass rate was 30.3 per cent and 24.7 per cent (Table 7.7). These compared with 30.6 per cent and 36.1 per cent for all external candidates, and 19.1 per cent and 28.6 per cent for internal candidates—suggesting that NTI is more efficient than the initial teacher education at TCII level provided by teachers’ colleges. Moreover, these pass rates must be judged against the quality of the entrants into the TCII programme (many are referred students who have failed the examination at previous attempts) and the fact that the examining board refuses to lower its academic standards merely to increase the graduation rate.
This might be read as a real sign of Nigeria’s firm intent to raise the quality of its teachers. However, from another perspective, the low pass rate, coupled with the academic nature of the materials, could suggest that the TCII programme is inappropriate to the needs of experienced primary-school teachers, subjecting them to an examination which has a gateway function in respect of yet higher academic studies rather than one which seeks to measure their competence as classroom teachers. The cost data, while not wholly reliable, indicate that the 1989 operating costs of NTI’s TCII programme were relatively low. The age of the equipment suggests that the time is fast nearing when NTI should have a further injection of capital to enable it to modernise and continue to play its vital role in Nigeria’s in-service teacher-training programme.

NTI now faces the task of upgrading primary-school teachers to NCE level. However, it is likely that Nigeria will continue to face a shortage of trained primary-school teachers as the education service is called on to respond to continuing population growth. Current estimates (World Bank, 1989) suggest that the population will grow to 157 million by the year 2000, with implications for the level of primary-school enrolments into the early years of the next century. Given this, it is more than likely that Nigeria will continue to have significant numbers of under-qualified teachers. In such circumstances, NTI will remain the most effective means of upgrading teachers well into the next century.

REFERENCES

National Teachers’ Institute (n.d.): Teachers’ notes. Guide for supervisors and course tutors, Information No. 3, Kaduna: NTI.
National Teachers’ Institute (1980): General principles of course writing for the distance teacher/learner, Kaduna: NTI.

National Teachers’ Institute [1990]: *National Teachers’ Institute, Kaduna. Annual reports covering the periods January—December 1988, January—December 1989*, Kaduna: NTI.


In 1974 a new curriculum for all schools was introduced in the Islamic Republic of Pakistan. This implemented the 1972 Education Policy which had two goals: to make education more widely available and relevant to all sections of the population (‘the masses’), and to bring about a large-scale reform of teaching methods to make the education provided more effective (Government of Pakistan, 1972, p. 7). The new curriculum aimed to ‘emphasise learning of concepts and skills and encourage observation, exploration, experimentation, practical work and creative expression’, (Government of Pakistan, 1972, p. 7), and to move significantly towards a more practical, technical and scientific education. This curriculum reform grew out of continuing concern about issues of quality and relevance at all levels of education.

Improved standards were to be achieved by ‘implementing revised curricula, properly training and retraining teachers, and providing suitable instructional materials’ (Government of Pakistan, 1976, p. 5). The reforms affected primary, middle and secondary schools as well as teacher education and were the first major changes in education in Pakistan since 1960. This case study describes how distance education was used to update serving primary teachers in the new modernised curriculum, as one of the first programmes of the Allama Iqbal Open University.

THE CONTEXT

The task of providing a national in-service programme for teachers in Pakistan within a short time-scale is illuminated by a brief glimpse at the context. Pakistan is a large country of 796,000 km² and widely varying physical features. The total population was 73.43 million in 1976, and 106 million in 1988, a population growth rate over this period of about 3.0 per cent per annum (Zaman and Qayyum, 1978, p. 57; World Bank, 1990, p. 228). Approximately 45 per cent of the population in 1976 was then, as now, under 15 years of age.
Pakistan (World Bank, 1990, p. 228). The population is unevenly distributed between the heavily populated Indus Plains of the Punjab and Sind and the remote scattered populations of the mountainous north and Baluchistan deserts. The economy is basically agrarian: 72 per cent of the population in 1981 was rural (Government of Pakistan, 1986).

Electricity is not available in all areas of Pakistan and in the mid-1970s extended to less than 35 per cent of the country; only nine per cent of villages then had electricity (Zaman and Qayyum, 1978, p. 57). Communications are uneven: the postal service is not always reliable; travel can be difficult and is often affected by weather conditions. Urdu is the national language although a number of regional languages (Punjabi, Sindhi, Siraiki, Baluchi and Pushto) are spoken as first languages. Arabic and English are also taught in schools. Pakistan is a strongly Muslim country, with Islamic values and ideology strengthened both in educational policy and in the curriculum by the government of President General Zia-ul-Haq in 1978. A large proportion of the country’s female population (including girls of school age) observe strict purdah, particularly in the more rural areas, and consequently withdraw from participation in public education.

Expenditure on education as a percentage of GDP has been one of the lowest in the world. Between 1955 and 1986 it remained at under two per cent (Siddiqui, 1987, p. 173). About 40 per cent of this small allocation was, in the mid-1970s, spent on primary education. Although universal primary education has been a continually restated goal since the 1962 Constitution it has remained an elusive one. Only about 50 per cent of children of primary-school age (six to 11) have generally been enrolled in primary schools; of these about 50 per cent drop out before finishing Grade V, the final year. The literacy rate is low—30 per cent overall and 19 per cent for females (World Bank, 1990, p. 178).

The education system is organised and administered on a federal system, one result of a new Constitution introduced in 1973. Pakistan consists of four provinces (Punjab, Sind, Baluchistan and North West Frontier), a federal area (Islamabad), and the State of Azad Jammu and Kashmir. Each of the provinces and Azad Kashmir has its own educational administration although overall policy control rests with the federal Ministry of Education. The 1973 Constitution gave powers to the federal government to legislate over curricula, standards and policy. At the federal level, the Curriculum Wing of the Ministry is responsible for the development of the national curriculum for schools and teacher-education institutions. However, each province has considerable power in implementing policy according to local needs. Detailed administrative control of the system within a province rests with the directorates of education, to whom the divisional and district officers are responsible. This federal-provincial system is complex, delicately balanced and politically sensitive. It offers particular challenges in effecting educational change on a national scale, as we shall see.
In-service initial training of teachers

THE RATIONALE

It was clearly recognised in federal planning that changes in teacher education had a crucial role to play in implementing the planned curriculum reforms. Substantial revision of the curricula took place in the pre-service college-based courses: the Primary Teachers’ Certificate (PTC), the Certificate in Teaching (CT) for middle-school teachers, and the BEd (Bachelor of Education) programme for secondary teachers. The provision of in-service courses on the new modernised curriculum presented a more difficult problem, particularly for the primary sector. It involved over 155,000 primary teachers and 54,000 schools throughout Pakistan. It was also clear that the provincial governments would not be able to bring about the changes on their own or at the required pace:

unless the Federal Government intervenes in a major way to discharge its constitutional obligations in matters of education policy, planning, curricula, syllabi and standards of education, a significant break-through cannot be achieved by the provincial governments alone.

(Government of Pakistan, 1976, p. 4)

The changes called for a national strategy in which the federal and provincial governments collaborated and which could be implemented within a short timespan with limited resource.

Ways and means of achieving this were considered at the Fourth Conference of Education Ministers (federal and provincial) in July 1976. In-service education for teachers was normally provided by the Curriculum Wing of the Ministry of Education and a small number of Extension Centres, five altogether in the country. These functioned under the direct supervision of Provincial Education Departments and arranged programmes of one to four weeks’ length, often in provincial capitals. A maximum of 40 teachers could participate in each course. The objectives of such courses were to ‘expand the teachers’ knowledge of the subject matter of primary education and to improve the teachers’ capacity to prepare and present lessons’ (Farooq, 1988, p. 16). The in-service courses were usually similar in kind to pre-service courses, particularly in their manner of presentation. Their frequency depended on the resources available at the time, but typically an Extension Centre might offer between 20 and 40 in-service courses altogether in a year for both primary and secondary teachers. These were of varying length, usually residential and mostly focused on one particular topic or subject. The total number of teachers who could participate in these courses represented a small proportion of all primary teachers, hundreds rather than thousands. It was evident that the required scale of the updating programme went far beyond the capabilities of existing in-service provision, and could not be provided by conventional means.

However, this large scale need coincided with the establishment of the Pakistan People’s Open University in 1974 (renamed the Allama Iqbal Open
University in 1977). The plans for this autonomous distance-teaching university had also featured in the government’s Educational Policy of 1972–80 and the National Assembly passed the Enabling Act for its foundation in May 1974. Its role was ‘to provide part-time educational facilities through correspondence courses, tutorials, seminars, workshops, laboratories, television, radio broadcasts and other mass communication media’ (Government of Pakistan, 1972, p. 22).

The main objectives of the University as described in the Enabling Act (No. XXXIX) were:

1. to provide facilities to people who cannot leave their homes and jobs
2. to provide such facilities to the masses for their educational uplift
3. to provide facilities for the training of teachers
4. to provide for instruction in such branches of learning, technology or vocational as it may deem fit, and to make provision for research and for the advancement and dissemination of knowledge in such a manner as it may determine
5. To hold examinations and to award and confer degrees, diplomas, certificates and other academic distinctions to and on persons who have been admitted to and have passed its examinations under the prescribed conditions.

(AIOU, 1979, p. 1)

The Allama Iqbal Open University (AIOU) was set up to be a national institution, with regional centres throughout Pakistan. It was designed to have sufficient academic and technical resources for the conduct of large-scale operations. It had a remit to provide courses for teachers and the potential to construct a more comprehensive course on the new primary curriculum than would be possible at provincial or local level. It was seen as being capable of offering retraining more quickly for larger numbers and at lower cost than conventional means. Finally, it offered the advantage of providing updating for teachers while they continued to work in their schools, thus saving the usual residential course costs as well as substitute teacher costs, and avoiding depletion of teaching staff in schools when substitutes could not be provided. For all these reasons the task of re-orienting primary teachers to the new curriculum was given to AIOU. It was seen by the Ministers of Education and others as the only feasible means of providing a rapid updating course on a large scale.

THE PRIMARY TEACHERS’ ORIENTATION COURSE

The Primary Teachers’ Orientation Course (PTOC) was the second education course to be produced by AIOU and its sixth course altogether. It began in 1976 with an enrolment of 5,426 (AIOU, 1981). It formed a major part of the
In-service initial training of teachers

University’s programme in the early years of the institution, as the figures in Table 8.1 show.

The course was produced by the Faculty of Education at AIOU. This grew out of the National Institute of Education which had been established in 1973 as part of the federal Ministry of Education. The brief of the National Institute of Education had been in general to improve education at school-level throughout the country and in particular to provide in-service training for teachers and supervisors of primary and secondary schools. This National Institute became part of AIOU in June 1975 ‘providing the focus and means of developing its national role in teacher education at all levels’ (AIOU, 1989, p. 105). So a number of the staff of AIOU who produced the PTOC course had experience of providing in-service education for teachers at a national level by conventional means through their experience with the National Institute of Education, though they were new to distance education and lacked first-hand experience of primary-school teaching.

### Aims and objectives

The PTOC was designed for all serving primary-school teachers, whatever their level of qualification, whether trained or not. Its objective was to provide a comprehensive updating course on the new modernised curriculum for all 155,000 teachers as speedily as possible. A three-year target for doing this was set. The new national curriculum for primary schools had been produced by the National Bureau of Curriculum and Textbooks (Curriculum Wing of the Ministry of Education) after a period of consultation with the provincial Bureaux of Curriculum and other educational agencies. The new schemes of studies developed for primary-school teachers were as follows:

1. Principles of education and methods of teaching
2. Child development and counselling

<table>
<thead>
<tr>
<th>Year</th>
<th>PTOC as % of total student enrolment</th>
<th>Total no. of AIOU courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–77</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>1977–78</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>1978–79</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>1979–80</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>1980–81</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1981–82</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1982–83</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1983–84</td>
<td>2</td>
<td>71</td>
</tr>
</tbody>
</table>

*Source: compiled from AIOU, 1985*
3 School organisation and classroom management
4 Language and methods of teaching
5 Mathematics and methods of teaching
6 Science and methods of teaching
7 Social Studies and methods of teaching
8 Islamiat/Islamic history and methods of teaching
9 Arts and practical arts and methods of teaching
10 Health and physical education.

(Abbas, 1987, p. 43)

These included subject areas new to primary teachers as well as new approaches to teaching them. The changes were incorporated into the revised PTC programmes at the elementary colleges for new teachers in training. The task for AIOU was to design and deliver to serving primary teachers throughout Pakistan an updating course encompassing the changes.

The aims of the distance-education PTOC programme were:

1 to familiarise primary teachers with the revised primary school curriculum
2 to increase teachers’ knowledge in the appropriate subjects and help them develop teaching skills
3 to provide to primary-school teachers an opportunity in terms of improving their qualifications.

(AIOU, PTOC course leaflet for teachers, 1977)

The third aim was later changed by AIOU in an attempt to provide a greater incentive to teachers to take the course:

3 to provide teachers with an opportunity in terms of improving their qualifications, by counting the PTOC as one course credit for the Intermediate Certificate.

(AIOU, PTOC course leaflet for teachers, 1981)

How AIOU perceived both the task and AIOU’s role in it is described by the university’s second Vice-Chancellor:

The criticism regarding poor professional preparation of teachers is indeed justified. The training programmes are overloaded with courses on theory and are hardly compatible with the milieu of the student and his needs. Even the in-service education programmes are stereotyped and haphazardly offered… The People’s Open University, therefore, aims at a major breakthrough in the field of in-service teacher education. The University is basing its in-service programmes on the critical competence needed by the teachers of various subject areas and at various levels

(Zaki, 1975, p. 20)
In-service initial training of teachers

Organisation and implementation

The course was commissioned by the federal Ministry of Education. The materials were designed and produced by AIOU staff in consultation with others (the Curriculum Wing at the Ministry of Education and teacher-education specialists). The course materials were produced at AIOU’s central campus in Islamabad and delivered by road to schools throughout Pakistan where the students taught. Students were not self-selected for the course. They were ‘nominated’ (as is common practice in Pakistan in education and in other fields) by District Education Officers (DEOs) acting on behalf of provincial Secretaries for Education. The course was seen as compulsory for every teacher. The DEOs registered the teachers as students of AIOU which, in addition to the course materials, provided regional tutorial support, assessed students’ work, set and supervised examinations, and awarded certificates of completion.

The timescale envisaged to achieve full implementation of the retraining programme was three years. In fact, the intended targets were not achieved and the PTOC continued for longer: it ran for 17 cycles between 1976 and 1986. Whether the original target was a realistic one is debatable.

Enrolment for the PTOC programme is shown in Table 8.2. It was seen from the start that the numbers enrolling for each six-month course presentation (or cycle, as it was called) needed to be high. For the first cycle (October 1976) the enrolment target had been 10,000, divided into provincial quotas, as shown in Table 8.3.

In the event, the actual registration was 5,426. Quotas were not reached in all provinces. This was taken to indicate that better liaison was needed between the provincial DEOs and AIOU in order to improve nomination procedures and enrolments. Letters were written to provincial Secretaries and DEOs, asking for their co-operation in achieving the enrolment targets.

Table 8.2 PTOC enrolment 1976–77 to 1985–86 (by year, not by cycle)

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–77</td>
<td>3,897</td>
<td>1,529</td>
<td>5,426</td>
</tr>
<tr>
<td>1977–78</td>
<td>16,590</td>
<td>5,442</td>
<td>22,032</td>
</tr>
<tr>
<td>1978–79</td>
<td>11,408</td>
<td>7,094</td>
<td>18,502</td>
</tr>
<tr>
<td>1979–80</td>
<td>6,353</td>
<td>2,634</td>
<td>8,987</td>
</tr>
<tr>
<td>1980–81</td>
<td>2,942</td>
<td>1,391</td>
<td>4,333</td>
</tr>
<tr>
<td>1981–82</td>
<td>4,236</td>
<td>3,183</td>
<td>7,419</td>
</tr>
<tr>
<td>1982–83</td>
<td>4,895</td>
<td>3,971</td>
<td>8,866</td>
</tr>
<tr>
<td>1983–84</td>
<td>602</td>
<td>1,038</td>
<td>1,640</td>
</tr>
<tr>
<td>1984–85</td>
<td>1,701</td>
<td>1,324</td>
<td>3,025</td>
</tr>
<tr>
<td>1985–86</td>
<td>2,109</td>
<td>1,319</td>
<td>3,428</td>
</tr>
<tr>
<td>TOTAL</td>
<td>54,733</td>
<td>28,925</td>
<td>83,658</td>
</tr>
</tbody>
</table>

Source: AIOU, 1989a, p. 19
Registration for the second cycle was much more satisfactory (14,143) for the objectives of the programme, but significantly increased administrative pressures on the registration, printing and distribution systems of the newly developing institution of AIOU. The introduction of course assignments, their marking and the recording of grades also added to the load, though highly desirable on educational grounds.

Enrolments over the first three years achieved the numbers in Table 8.4, less than a third of the original target. Of the teachers who were recruited to the course a proportion, substantial in some years, did not complete it. In order to gain a certificate of successful completion, students had to pass in both continuous assessment and in the examination. Enrolment and completion rates for the PTOC programme are shown in Table 8.5.

**Target audience**

The target audience of primary-school teachers was a varied one. In general, the levels of qualification and professional training were low. The Primary Teachers Certificate (PTC) was awarded at the end of a nine-month full-time course at an elementary college; students entered this on leaving school at the age of 15, having gained the Secondary School Certificate (Matriculation)
Table 8.5 Enrolment, examination and drop-out, PTOC, 1976–86

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrolment Total</th>
<th>Female</th>
<th>Appeared Total</th>
<th>Female</th>
<th>Passed Total</th>
<th>Female</th>
<th>Drop-out rate % Total</th>
<th>Female</th>
<th>Pass % enrolment Total</th>
<th>Female</th>
<th>Pass % appeared Total</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–77</td>
<td>5,426</td>
<td>1,529</td>
<td>2,942</td>
<td>770</td>
<td>2,717</td>
<td>745</td>
<td>46</td>
<td>50</td>
<td>50</td>
<td>49</td>
<td>92</td>
<td>97</td>
</tr>
<tr>
<td>1977–78</td>
<td>22,032</td>
<td>5,442</td>
<td>1,306</td>
<td>3,030</td>
<td>7,471</td>
<td>1,764</td>
<td>41</td>
<td>44</td>
<td>34</td>
<td>32</td>
<td>57</td>
<td>58</td>
</tr>
<tr>
<td>1978–79</td>
<td>18,502</td>
<td>7,094</td>
<td>7,308</td>
<td>3,121</td>
<td>4,397</td>
<td>1,854</td>
<td>61</td>
<td>56</td>
<td>24</td>
<td>26</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>1979–80</td>
<td>8,987</td>
<td>2,634</td>
<td>4,343</td>
<td>1,192</td>
<td>2,771</td>
<td>885</td>
<td>52</td>
<td>55</td>
<td>31</td>
<td>32</td>
<td>64</td>
<td>72</td>
</tr>
<tr>
<td>1980–81</td>
<td>4,333</td>
<td>1,391</td>
<td>1,822</td>
<td>555</td>
<td>1,339</td>
<td>426</td>
<td>58</td>
<td>60</td>
<td>31</td>
<td>31</td>
<td>73</td>
<td>77</td>
</tr>
<tr>
<td>1981–82</td>
<td>7,419</td>
<td>3,138</td>
<td>3,902</td>
<td>1,901</td>
<td>3,500</td>
<td>1,868</td>
<td>47</td>
<td>40</td>
<td>47</td>
<td>59</td>
<td>90</td>
<td>98</td>
</tr>
<tr>
<td>1982–83</td>
<td>8,866</td>
<td>3,971</td>
<td>6,371</td>
<td>2,667</td>
<td>4,981</td>
<td>1,927</td>
<td>28</td>
<td>33</td>
<td>55</td>
<td>49</td>
<td>77</td>
<td>72</td>
</tr>
<tr>
<td>1983–84</td>
<td>1,640</td>
<td>1,038</td>
<td>1,396</td>
<td>941</td>
<td>1,050</td>
<td>694</td>
<td>15</td>
<td>9</td>
<td>64</td>
<td>67</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>1984–85</td>
<td>3,025</td>
<td>1,324</td>
<td>2,524</td>
<td>1,139</td>
<td>2,188</td>
<td>900</td>
<td>17</td>
<td>14</td>
<td>87</td>
<td>79</td>
<td>68</td>
<td>66</td>
</tr>
<tr>
<td>1985–86</td>
<td>3,428</td>
<td>1,319</td>
<td>3,041</td>
<td>1,159</td>
<td>2,602</td>
<td>949</td>
<td>11</td>
<td>12</td>
<td>78</td>
<td>72</td>
<td>86</td>
<td>82</td>
</tr>
</tbody>
</table>

Source: AIOU. 1986b and 1987
after ten years of schooling. However, not all primary teachers were qualified: up to a third were untrained, and others were employed after taking crash training programmes to meet the urgent need for teachers.

Standards of teacher education varied widely between provinces and in one (Baluchistan) no PTC courses were available, with the result that a higher number of untrained teachers were in post there. The number of female teachers also varied widely between provinces, and between urban and rural areas, with severe shortages in the latter because of cultural and traditional constraints on the mobility of female teachers. Primary teachers were poorly paid and many did additional part-time work to supplement their incomes. They often had poor study conditions at home and at school. The schools they taught in were frequently ill-equipped and short of textbooks for pupils and teachers to use. There was a lack of a career structure for primary-school teachers: any advancement was achieved by a move out of primary-school teaching. Absenteeism of teachers was a common phenomenon.

Once in post, teachers generally received little or no further training or professional development. Classrooms tended to be characterised by didacticism on the part of the teacher, and rote learning and memorising on the part of the pupils. This was also a familiar pattern for many of the teacher-education courses. Initial teacher training and in-service work were implemented quite separately by different sets of people within the education service, and both teachers and trainers had little opportunity to make inputs to school curriculum development and policy.

A survey of primary teachers taking the PTOC course revealed the characteristics shown in Table 8.6. The data was produced from 1,200 completed questionnaires, a 75 per cent response rate to a postal survey (Rashid, 1985a, pp. 19–20). What this shows is typical of other cycles: a differing level of qualification and length of teaching experience of teachers on the PTOC course, and relatively high participation rates for female and rural teachers. It also shows that about one-sixth of the teachers were untrained and a third or more had finished schooling before the age of 15. Thus the audience for the distance-learning course differed among other things in levels of achievement and length of experience as learners in the formal education system.

**Design and content of the PTOC**

The course was designed to last one semester (six months); AIOU has a two-semester year, one semester’s work being equivalent to one credit. The course had 24 units of self-study material in its early cycles, and 18 in later ones (after 1980) to conform to other AIOU courses. Each cycle usually coincided with a semester in length (though the first two cycles each ran for longer by two months because of production difficulties). One ‘unit’ represented one week’s study (eight to ten hours’ work), including radio broadcasts, self-
In-service initial training of teachers

Table 8.6 Profile of primary teachers, PTOC 13th cycle, 1983–84

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 21–30</td>
<td>61</td>
</tr>
<tr>
<td>Urban</td>
<td>41</td>
</tr>
<tr>
<td>Rural</td>
<td>59</td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
</tr>
<tr>
<td>Female</td>
<td>54</td>
</tr>
<tr>
<td>Less than five years’ teaching experience</td>
<td>56</td>
</tr>
<tr>
<td>Between five and ten years’ teaching experience</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic qualification</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle-school leavers*</td>
<td>93</td>
<td>7.75</td>
</tr>
<tr>
<td>Matriculation*</td>
<td>473</td>
<td>39.42</td>
</tr>
<tr>
<td>Intermediate*</td>
<td>598</td>
<td>49.83</td>
</tr>
<tr>
<td>BA</td>
<td>34</td>
<td>2.83</td>
</tr>
<tr>
<td>MA</td>
<td>2</td>
<td>0.17</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional qualification</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTC*</td>
<td>753</td>
<td>62.75</td>
</tr>
<tr>
<td>CT*</td>
<td>78</td>
<td>6.50</td>
</tr>
<tr>
<td>JV*</td>
<td>91</td>
<td>7.58</td>
</tr>
<tr>
<td>SV*</td>
<td>80</td>
<td>6.67</td>
</tr>
<tr>
<td>MEd</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Untrained</td>
<td>198</td>
<td>16.50</td>
</tr>
</tbody>
</table>

Source: compiled from Rashid, 1985a, pp. 19–20

Notes

a. Middle-school leavers: Grade VIII, at age 12–13, after eight years of schooling (five primary, three middle).
d. PTC: Primary Teachers Certificate, nine months’ duration; Secondary School Certificate (Matriculation) required for entry to it.
e. CT: Certificate of Teaching (for middle-school or lower-secondary teaching), one year’s duration; Intermediate Certificate required for entry to it.
f. JV: Junior Vernacular Certificate. Offered after a one-year training period following eight years of schooling. It prepared teachers for primary classes I–IV (later discontinued).
g. SV: Senior Vernacular Certificate. Offered after a one-year training period following ten years’ schooling. It prepared teachers for classes I–VIII (primary and middle-school/lower secondary).

assessment questions and written assignments. The course consisted of 144–180 hours’ work altogether, excluding the time taken to attend tutorials every few weeks and the final examination. The teachers studied in their own time. There were 18 radio programmes of 15 minutes each, which were intended to ‘expand key concepts and other elements of the written material’ (PTOC course leaflet). No teaching practice was involved in the course, and no
observation or assessment was made of the teacher’s performance in the classroom. There was no residential course component.

The content of the PTOC was as shown in Table 8.7.

The content was modified between 1976 and 1984, at one point including a unit on ‘School library’. Within these subjects the balance between general education in school subject-matter and teaching approaches varied. In the maths courses there was more new subject content (‘new maths’) than in the Urdu courses, where greater emphasis could be placed on methods of teaching. For example, one of the maths units on ‘Geometry and graphs’ had the following content:

- basic concepts of geometry
- point, straight line and plane
- angles, triangles, quadrilaterals and circle
- graphs.

The Urdu Writing course contained:

- programme and objectives of teaching Urdu writing
- different methods of teaching writing
- kinds of writing.

(AIOU, PTOC course syllabus n.d.)

However, in general the emphasis was placed on content:

It was taken as a principle of the PTOC that the emphasis should be on content. Teaching methods were not ignored, but there was a firm belief
that there is no substitute for knowledge; and that a teacher can only
teach what he himself knows.

(Prescott, 1982, p. 3)

Given the low knowledge-base of many primary-school teachers this was not an
unreasonable priority. What the PTOC contents lists show is a wide-ranging
course, which drew on a large pool of academic and professional expertise for its
construction. At the same time the way each unit was handled was selective:

only certain topics from each subject were dealt with. Unit authors quite
deliberately concentrated on subject-matter that would be new to
teachers’ knowledge, skills and concepts introduced in the new
curriculum that they were unlikely to have come across in their initial or
subsequent training.

(Prescott, 1982, p. 3)

Over the course’s ten-year life it was revised twice and completely rewritten
once (Siddiqui, 1987, p. 200), sometimes in response to new developments in
primary education in Pakistan. For example, in 1978 the Ministry of Education
requested the PTOC course team to include reference to the UNICEF Primary
Kit which was being distributed to schools, to help teachers make better use
of it. This they included in the fourth cycle. Another development which
guided a major revision in 1980 was the Islamisation of the curriculum by the
new government after 1979. Some changes stemmed from the course team’s
own ideas, for example, the inclusion of units on adult education, an
innovation in the field of education in Pakistan at the time. Other revisions
were made to improve the quality of existing content though inevitably, with
an expanding profile of courses in production, these took a lower priority.
Shifts in priorities also occurred within AIOU: other sectors of need within
the country competed for staff time and resources. Within the Faculty of
Education the development of initial teacher-training courses soon began to
take priority over the further development of the PTOC, which was judged as
having already met some of its initial objectives.

Assessment

The first cycle had no course work, only an examination. From the second
cycle onwards there was continuous assessment of four written assignments
(counting for 40 per cent of the final grade), marked by the student’s tutor.
The three best grades out of the four contributed towards this mark. The
examination (counting for 60 per cent of the final grade) was held at local
examination centres. Students were required to pass in both course work and
examinations (three 1 1/2-hour papers consisting of multiple-choice questions)
in order to be awarded AIOU’s PTOC certificate.
Debate about assessment within the PTOC course team soon grew to focus on two questions. The first was whether there should be examinations at all for an in-service course. Some members of the course team argued that it was inappropriate to have them for this kind of professional development work for serving teachers, especially since the conventional in-service courses did not usually have these or any other kind of assessment (AIOU, PTOC course team minutes, 22 March 1978). Nonetheless the examination was retained to fit AIOU’s requirements for all its courses (to ensure their credibility). The pressure to conform in this respect increased when PTOC became a component course of other AIOU programmes and qualifications (for example, as the first part of the PTC course).

The second question focused on the nature of the assessment. Multiple-choice questions were the form of assessment for the first few cycles. The issue was whether multiple-choice questions were the best way of assessing learning on the course, and whether they could test the kinds of understanding aimed for. Criticisms voiced within the course team were that they were too restricting, left no room for creativity or thoughtfulness in students’ answers, and that their use was, in fact, contradictory to practice as recommended in the PTOC’s own course unit on evaluation (AIOU, PTOC course team minutes, August 1979). Subsequently, different types of questions were incorporated to some extent. Though multiple-choice questions continued to be used, some course assignments became more varied in form, and included short discursive written answers as well. As can be the case in distance-learning courses, especially where resources are slim, what was educationally desirable in terms of assessment conflicted with the need to have administratively convenient and low-cost ways of marking large numbers of student scripts.

Use of media

The media used were print, radio and local tutorial support. There was no use of television (apart from two general AIOU programmes in early years) because of limited national coverage and very high costs. Audiocassettes were used to a very small extent in the last few cycles of PTOC in place of radio programmes.

The first PTOC cycle had printed material only, the second cycle added radio and tutorial meetings. The courses were written in Urdu and needed calligraphers to produce them, a slow process; a calligrapher could produce approximately four A4 pages of script in a day (Sargant et al, 1989). This also made heavy demands on editors in terms of proof-reading time and was reported as a cause of delay in the production of materials. About 70 per cent of students used Urdu as their second language. While this was not a major obstacle for Punjabi speakers (the two languages are not dissimilar), it was more difficult for students from other regions, such as Sind.

Print materials were at first cyclostyled. Problems in printing caused delays in the first few cycles, which were extended as a result. By the fourth cycle printing was seen by the course team as a major difficulty, both in terms of
quality and conformity to standards, and in terms of the quality and availability of paper. All texts were printed externally to AIOU, either by private or government printers. However, the printing industry in Pakistan consisted of many small-scale printers, most of whom did not have the working capital to take on major jobs such as those required by AIOU (Zaman and Qayyum, 1978, p. 64). Moreover, every piece of print for the PTOC course had to be tendered for separately, a time-consuming task (AIOU, PTOC course team minutes, 1978). The need for AIOU to have its own print operations was soon pressing as the number of courses grew rapidly (from five in 1975–76 to 80 in 1984–85) but it was not until 1989–90 that the facility finally became available.

Print was the main medium of learning. Course units for PTOC were designed for self-study, described by AIOU as ‘written unit-lessons in a simple informal language’, though the writers themselves were, at the beginning, in the process of learning how to write effective distance-teaching materials. Distance teaching was new to Pakistan and there was little indigenous experience available. Criticism of the first few cycles was that the quality of teaching material was uneven and that the style of the units was too close to traditional textbooks (AIOU, PTOC course team minutes: proposal for revision of the fifth cycle, n.d.). However expertise grew with time and there was also exchange of staff and collaboration between the AIOU and the UK Open University, funded by the British Overseas Development Administration. Training workshops for course writers were held in Islamabad.

In the construction of the first cycles, primary teachers from Islamabad and Rawalpindi reviewed the materials as did expert members of the Ministry’s Curriculum Bureau. Few members of the course team had experience of teaching at the school level, and none had been a primary-school teacher. While consultation and developmental testing with teachers in schools were ways of compensating for this lack, the pressure to get the course ready on time and to move on to the production of new courses in AIOU’s rapidly expanding programme restricted the extent of this contribution. One result was that the integration of theory with classroom practice was not always achieved in the texts. Though the course units offered some practical guidance and hints to varying degrees, they tended to be informational and theoretical in content. However, the conveying of new curriculum information and subject content was indeed a major purpose of the course. The PTOC texts were generally well-received by teachers and were bought by other training institutions for their own use. When a cycle was revised or rewritten, any remaining out-of-date materials were given by AIOU to the training colleges who were glad to receive them. They were a resource which did not exist in any other form in a country where textbooks were scarce and expensive.

The PTOC was the first of AIOU’s courses to make use of educational broadcasting in Pakistan. The programmes were first transmitted in November 1979 and continued until 1985. To begin with there were 24, then later on 18 programmes of 15 minutes’ length. The programmes were repeated once each
week but, as the number of other courses grew, the repeats were squeezed out of broadcasting schedules. At a later stage, audiocassettes of the programmes were made available at regional offices for students to listen to there or to buy. The radio component of the course was relatively small: 4 1/2 hours of the total 144–180 study hours for the course.

Not all students could receive the radio programmes. Electricity supply varied according to area. Although AIOU had assumed that most students had access to radio, this was not the case as a study of the 1983–84 PTOC course found (Rashid, 1985a). Some students had to travel to hear the programmes. The use of batteries for radios was possible but expensive in relation to income for a large part of the population, including teachers. Radio had full national coverage in the country (93 per cent of the population) from a network of eight regional radio stations. However, programmes were transmitted only from Islamabad in order to keep costs down, with the result that reception was consequently poor or unobtainable in some areas. Transmission from each provincial capital would have needed separate payment to each station, making the cost of national transmission by the Pakistan Broadcasting Company extremely high (Rs 18,000 or US $1,800 per hour for all eight stations, according to Zaman and Qayyum, 1978, p. 65).

In terms of the PTOC students’ use of radio, the 1983–84 study reported:

- 41 per cent (492 out of 1,200 students) had radio
- 20 per cent (240) had access to radio, but did not own one
- 39 per cent (468) did not have a radio nor access to one.

(Rashid, 1985a)

So 61 per cent of PTOC students in this survey could listen to the radio programmes if they chose. About 13 per cent had not listened to any. Overall, 35 per cent of students had listened to less than a quarter of the programmes and 30 per cent had listened to between a quarter and a half. In other words, two-thirds of the students listened to less than half of the programmes. The course writers considered radio effective for teacher education because it could provide a more intensive experience for students and could expose them to varied classroom situations and problems, though in practice the number of programmes made in the field was few. Of the students who listened to the programmes, 80 per cent rated them as useful and said they appreciated hearing the voices of the unit authors, and many wrote letters to them as a consequence. The main problems identified by students in the use of radio included difficulties in reception and poor sound quality, unsuitable time scheduling, not enough pauses in the programmes to allow note taking, and some difficulty in understanding Urdu for students who used it as a second language. In evaluating the use of radio on the PTOC, Rashid concluded that the use of radio had been successful although:

two factors work against the operation of the radio component: (i) People
are poor and their level of income is very low; (ii) Large parts of the country are undeveloped.

(Rashid, 1985b, p. 55)

The medium of radio was used to reinforce the text in three ways: to emphasise or clarify selected key or difficult areas; to add extra points of interest; and to extend what was in the text. From the fifth cycle onwards an innovatory use was made of ‘radio-vision’ for teaching mathematics. This linked the radio script very closely to the text. The radio-teacher directed the student’s attention to particular features of diagrams in geometry and talked through key points as the student followed them in a small radio-vision booklet, which consisted mainly of diagrams. This used the two media effectively together though it would have been less ephemeral an experience for the student if audiocassettes had been used, with their potential for repeated playback, but this was not feasible at the time. While this use of radio-vision demonstrated close links with the course text, other units showed lesser degrees of media integration, and one may speculate as to how far this affected the extent to which students saw the programmes as essential listening.

Local tutor support

From the second cycle onwards local tutor support was provided as AIOU’s regional network and services developed. Tutors were appointed, starting with 510 for all courses in 1977–78, and increasing to 1,271 in April 1986 (AIOU, 1989b, p. 169). Their role was to help:

through personal contacts and by post, in better understanding of the correspondence units, better listening of the radio broadcasts and counselling on matters relating to self-assessment exercises.

(Zaman and Qayyum, 1978, p. 62)

They were recruited from colleges and secondary schools around the country and were supervised from a number of regional offices. Each tutor was allocated a group of about 30 to 35 students, though some had more. There were AIOU regional offices in seven major cities by 1978 and more were planned; by 1985 there were 11. They had full-time regional directors with a few administrative or clerical support staff in each; their role was to administer the system in the field, and to recruit and supervise the part-time tutorial staff. By the third cycle, the importance of training for the part-time tutors had become apparent, and one-day briefing sessions were held by the course team and regional directors at 14 locations throughout the country over a period of two weeks; in terms of staff time this was a demanding exercise which was not repeated. Printed materials to support the tutors’ work were produced and occasional regional meetings took place.
Students were encouraged to meet with their tutors at local study centres, that is, rooms available at no cost in existing educational institutions. These were few to begin with: in 1979 there were only 28 AIOU study centres throughout the country (AIOU, 1986a, Table 8, p. 151); these grew to 356 by 1986 (AIOU, 1989b, p. 7). However, as well as these, there were additional PTOC study centres, organised separately from other AIOU programmes. There were 400 of these meeting places by 1979 (AIOU, 1979, p. 89). They were feasible when students were registered in groups from tehsils (local districts). Their use meant that the majority of PTOC students lived or worked within a reasonable distance of their study centre and could meet with other teachers there. This arrangement is reflected in the higher tutorial attendance figures for PTOC students, particularly in rural areas, compared with students on other courses (AIOU, 1982). Even so, tutorial attendance (which was optional) was still difficult for some students: fewer than half of the rural teachers could get to study centres compared to three-quarters of the urban teachers. Tutorial contact was seen as valuable by many of the students; over 75 per cent of those who approached their tutors with questions or problems said they found their tutors co-operative and the meetings useful. Students’ suggestions for improving the local support services included the provision of more study centres, more resources at the study centres (radio, television, books), female tutors for female students, and tutorials during the day-time for female students (Rashid, 1985a, pp. 38–9).

EDUCATIONAL ACHIEVEMENT

The PTOC programme was one of AIOU’s many courses (the largest in terms of enrolment), so part of its achievement was that of AIOU as a whole. Being able to reach the learners wherever they were and to provide new access to courses through distance education was a major innovation in education in Pakistan. AIOU has been successful in reaching rural and female students, two previously disadvantaged groups (Sargant et al., 1989). Given the country’s infrastructure and limited financial resources, the logistics of the distance-teaching operation were considerable but, as the PTOC and other programmes demonstrated, the system could work. If at times it did not work as effectively as it might have done, the reasons for failure were usually identifiable, whether human, systems, resource deficiencies or inadequate quality control.

Advantages

The achievements of the PTOC are perhaps most visible when measured against the alternatives available and the scale of the teacher in-service provision needed:
The question of scale was, and still remains, a crucial factor in the aims and activities of Allama Iqbal Open University. The country’s educational needs and problems are immense, its resources inadequate. Only a national institution, using new instructional methods, could begin to tackle these problems on a truly meaningful scale.

(Dr Allana, Vice-chancellor, in AIOU, 1986a, p. 4)

PTOC disseminated information about the curriculum changes on a scale previously impossible to achieve in Pakistan. It accommodated large numbers of teachers and AIOU was able to respond to sudden fluctuations in student numbers more easily than would have been possible in conventional institutions or in-service programmes. The use of distance education afforded the possibility of reaching teachers quickly: the advantages of the saturation method as opposed to the limitations of the trickle-down approach. Access to information about the new curriculum was provided to large numbers of female and rural teachers (including women teachers observing purdah) who would not otherwise have participated in any inservice course. Materials were delivered, if not always on time, to teachers’ schools and tutorial support was offered to groups of teachers at the local level.

As well as being able to take the course to where the teachers were, the PTOC was successful in providing a national course of acceptable quality. Because of the resources and expertise the course drew on in the preparation of materials, the quality was better than most conventional alternatives. The PTOC met the curriculum updating need in a more comprehensive way in terms of subject content than conventional alternatives available. Furthermore, the small number of scarce education specialists producing the course were able to share their expertise with a very large number of teachers in the field.

The PTOC course put the updating materials directly into the hands of the teachers: there was no filtering down of content through layers of trainers. The changes in the curriculum were clearly communicated to all. The materials were also open to public scrutiny. The Ministries of Education were able to see what was being provided for all teachers throughout the country and to make judgements about how well or badly the PTOC matched the curriculum objectives in the National Policy. Furthermore, there was clear and explicit assessment of it, unlike the conventional alternatives. Because the materials were produced by one central agency (AIOU in consultation with other relevant bodies) they provided a common standard of resource which could be used throughout the different provinces at the same time. The disadvantage of this, it can be argued, is the lack of local relevance or even local language: however, this would be a problem with any national programme, not just a distance-education one.

The value of the PTOC programme was seen by the University itself as follows:

it offered a comprehensive package covering all subjects taught at the primary level, in addition to units on population education, assessment
and evaluation, arts and crafts and adult education not usually included in the teacher training curricula of primary school teachers at any stage, pre-service or in-service...as an additional plus, the teachers going through this course came to own a small collection of 10 valuable professional books which they could use for reference. Also they did not have to leave their homes or classes to participate in the course.

(Dr Zaman, Vice-Chancellor, Preface to AIOU, 1979)

The point made here about providing a permanent resource in the form of materials is an important one, particularly in a country where textbooks are few, often old and out of date. The PTOC created materials where none had previously existed, and it was reported that they were used more widely than by AIOU students alone, though no investigation was done of this secondary use.

As with other in-service courses provided through distance education, the teachers were studying the course as they continued to teach and this provided two advantages. First, the schools were not deprived of their teachers, so substitutes did not have to be found and paid for. Second, the teachers could immediately put into practice what they were learning, in contrast to the conventional full-time course where there was a time lag between attending a residential course and putting new learning into practice on their return to school. How far teachers actually did put into practice what they learnt is impossible to say, because of the lack of evaluation evidence. No observational studies or testing of pupils’ learning outcomes took place. In common with many teacher-education programmes in other countries, little systematic evaluation was done to explore these questions, so it is not possible to make substantiated judgements. Part of the reason for this was, as described, other priorities of work; but part might also be attributed to AIOU’s perception of its primary role as being the provider of the course not the evaluator of its effects, other than in relation to course development and the distance-learning system.

Problems

Many of the problems encountered in the early life of the PTOC programme were those of any new distance-learning institution learning how to function and cope with rapid expansion—for example, problems of delivery, scheduling, internal mail efficiency, and strains on developing administration systems created by rapid growth in student numbers. The course writers were learners themselves, and it is not surprising that the quality of the materials was variable. Distance education was new to Pakistan and, as in other countries, was at first regarded with suspicion:

Its supporters were few, its detractors many. It has had to ‘sell’ its system of learning to a populace which had never heard of it before. The average
Pakistani student is so used to sitting in a classroom with a teacher dictating terms that he never stops to think that it is perhaps not only the teacher who teaches but he who learns...Tradition is the main barrier to innovation. It takes time to establish the workability of a new idea or system.

(Thip Allana, Vice-Chancellor, in AIOU, 1986a, p. 2)

Some of the problems diminished with increased experience and the development of administrative structures and systems within the organisation, but others were created by the rapidly increasing numbers of courses and students.

The two major problems which affected the PTOC’s progress in particular were the recruitment and retention of students. These had an impact on the cost-effectiveness of the programme. The initial target of 155,000 in three years was not met; by the end of the first three years less than a third of the target group (46,616) had enrolled. This figure can be viewed as failing in terms of the original objectives, but still succeeding in reaching a far larger proportion of primary teachers than otherwise would have been reached. However, even though enrolled, many teachers failed to complete the course as Table 8.8 shows.

Of those taking the examination, 67.63 per cent passed. However, these 31,674 successful students represent only 37.86 per cent of the 83,658 students who enrolled. The reasons for low recruitment and relatively high non-completion bear closer examination.

### Table 8.8 Total enrolment and completion rates, 1976–86

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total enrolment on PTOC</td>
<td>83,658</td>
<td>100.00</td>
</tr>
<tr>
<td>Total no. of students</td>
<td>46,831</td>
<td>55.98</td>
</tr>
<tr>
<td>completing course work and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>appearing in the examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. dropping out</td>
<td>36,737</td>
<td>43.91</td>
</tr>
<tr>
<td>before the examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of examinees</td>
<td>31,674</td>
<td>37.86</td>
</tr>
<tr>
<td>passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of examinees</td>
<td>15,157</td>
<td>18.12</td>
</tr>
<tr>
<td>failing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: compiled from AIOU, 1989b, p. 213*

### Recruitment

In enrolling students on the course the nomination procedure was a crucial factor in AIOU’s ability to reach its target numbers. The recruitment of teachers was not in the hands of AIOU. It lay with the provincial DEOs who (with Assistant Education Officers (AEOs)) were divisional administrators within provinces with the responsibility for administering and supervising...
primary education in their districts. The posts were created in 1973 as a step towards decentralising educational administration. The number of DEOs and AEOs had remained static while the number of primary schools and quantity of administrative tasks increased. Some AEOs had as many as 100 primary schools to supervise as well as carrying other responsibilities. This meant that the amount of time they could give to the direct supervision of primary schools in general was limited (AIOU, 1988).

The PTOC created additional demands. It had been agreed at the level of provincial Secretaries of Education that the DEOs in each province would organise groups of teachers to take the PTOC course. DEOs decided which teachers and how many in their area would participate, and were responsible for some of the administrative tasks involved in forming groups and in enrolling them in AIOU’s system. Thus the PTOC programme required extra work which did not draw extra resources or financial reward (one argument was that it was all government work anyway and did not warrant extra payment). Moreover, AIOU’s priorities and those of the DEOs did not always coincide, for understandable reasons.

However, it meant that AIOU, the provider of the course, was dependent on the provincial education administration for the recruitment of students on to it. Relationships between DEOs or AEOs and AIOU’s Regional Directors relied on the goodwill of the individuals concerned as well as on the filtering down of directives from the Provincial Secretaries. Liaison between AIOU and the DEOs was the responsibility of the Regional Directors (among their other duties), though communication also took place at the policy level between the Vice-Chancellor and the provincial Secretaries of Education. Letters were sent to the provincial Secretaries from time to time from the Vice-Chancellor of AIOU (such as that from Dr Zaman, June 1980, about the nomination of teachers for the seventh cycle of PTOC), to reaffirm the purpose of the PTOC programme, the role of the DEOs in recruiting students, the problems being encountered by AIOU in this respect, and to press for the DEOs’ active involvement in recruiting students and in exerting pressure on them to complete the course. Suggestions were also made to the DEOs for different ways of managing the recruitment more effectively (such as systematic geographical selection, grouping by tehsil or local district level), to avoid the problems AIOU was experiencing: duplication of nominations, late registrations, last-minute cancellations or lack of match between the nominations sent and the AIOU quotas set.

These issues were a matter of frequent concern to the PTOC course team (AIOU, PTOC course team minutes, 1977–80). At one point, in order to solve some of these problems, the course team designed a new enlarged role for the DEO as ‘District Coordinator’ with a clear job specification in relation to the PTOC work and with payment, but since AIOU had no control over DEOs and no power to change their role, this plan could not be implemented. The collaboration with DEOs was important in that they acted as gatekeepers to the pool of teachers; they had local knowledge of primary-teacher deployment
and needs, provided a network of access to teachers throughout the country, and by registering groups of students could handle some of the administrative tasks needed by AIOU. The difficulty in achieving recruitment targets cannot be seen as a problem arising only from how AIOU organised itself or its lack of a strong regional presence or even because the in-service course was provided through distance education. Underlying it were the recurrent problems, tensions and even conflicts in the relationship between the federal and provincial education administrations, which surfaced in any national endeavour in education.

Retention and drop-out

Retention of teachers on the course was the second major problem and seriously affected the internal efficiency rates for the course. The non-completion rates were 43.9 per cent overall, rather high for a comparatively short course. How did this compare with other AIOU courses?

In 1982–83 the non-completion rate for BA and higher secondary programmes was 50–68 per cent. Individual courses had drop-out rates varying between 40 and 70 per cent though teacher-education courses tended to have slightly higher completion rates. A study often selected 1986 courses, including a teacher-education course, in 1986 reported a lower average drop-out rate of 30 per cent. The reasons for non-completion were categorised as personal, course-related and system-related, with the latter figuring prominently (International Development Research Centre/AIOU, 1989).

In the case of the PTOC programme, there is a case for attributing the non-completion rate as much to factors outside the course (lack of rewards or sanctions) as to deficiencies within it (problems relating to the efficiency of the system or lack of adequate student support services). The course was said to be mandatory for all primary teachers, but there were no sanctions operating against those teachers who chose not to complete it: there were no deleterious effects to career prospects as a consequence (there was, in any case, no career development path for primary teachers). There was similarly a lack of incentives to encourage successful completion and the nomination of teachers to the course was not always presented to them as a potential benefit by the DEOs. The lack of both sticks and carrots affected the teachers’ motivation crucially. As AIOU saw it: ‘the biggest problem faced by the University in launching this course is the lack of motivation on the part of the teachers’ (AIOU, PTOC course team minutes 1980) and:

Lack of any financial incentive for teachers enrolling in the Primary Teachers Orientation Course (PTOC) has, however, been adversely affecting their performance level. Some incentive from the government in the form of, say, a single increment would certainly provide greater motivation. On its part the University is providing incentives to teachers
who complete PTOC by accepting the course work as equivalent to one credit course for the Intermediate and CT level Programmes.

(AIOU, 1979, p. 26 and repeated in AIOU, 1983, p. 41)

Efforts by AIOU to negotiate with the Ministry for an extra increment of salary for teachers failed. So many teachers were involved that the cost was thought too high. From the teachers’ point of view, not only did they lack a financial incentive to take the course, but it was also at some cost to them personally, in terms of both time (often used for supplementing income) and expense, where travel was involved. Attempts were made by AIOU to find ways of covering the costs of travel and subsistence for teachers going to study centres for tutorials and examinations. Funds were sought both from the provincial governments and from UNESCO, but in neither case were they forthcoming. The costs of travel and daily allowances for 10,000 teachers for four tutorial meetings and examination attendance in 1980 were estimated at Rs 1,750,000 (AIOU, PTOC course team minutes, 21 June 1980). In an effort to address the problem, AIOU created internal incentives in counting the PTOC towards other AIOU qualifications (and awarded medals to the six best students), and eventually it became the first part of the PTC, a qualification which offered increased job security and financial benefits to serving teachers as a result. After it did, completion rates increased.

A final factor for consideration in interpreting the significance of the non-completion rates may have been the low involvement or lack of ownership in the course by the teachers who were, in effect, being told to do it. The way the innovation was introduced to teachers and implemented at local or regional level may have had a negative effect. As well as the teachers, the DEOs and provincial authorities themselves saw the project as a largely federal endeavour and responsibility, and placed it lower than more immediate provincial priorities. Clearly a number of factors were at work affecting recruitment and retention of students on the course. Together, they affected the extent to which the course reached the teachers, and how they perceived its importance.

Impact on teacher effectiveness

The impact of PTOC on teacher effectiveness is difficult to judge because of the lack of firm evidence. The evaluation done of the course tended to be in relation to the acceptability of the learning materials and the AIOU system to students (for example, Prescott, 1982; AIOU, 1982; Rashid, 1985a). There was no systematic study of teaching outcomes in terms of changes in classroom practice or pupils’ learning gains. This kind of evaluation was generally not conducted for conventional in-service programmes either at the time. It is not known, for example, whether or not study of the course units on new maths resulted in new maths being taught or in improved maths teaching
and learning. The schools in any case often lacked the materials to support the changes in teaching approaches.

It can be claimed that teachers who completed the course had, through the course assessment, demonstrated their understanding of the course content; but the nature of this understanding could not always be tapped fully by the limited scope of the multiple-choice questions frequently used. Few assignments appeared to focus much on the application of theory to practical action or to call for evaluation by the teachers of their own practice. As is to be found elsewhere, there was a problem for AIOU in fitting evaluation activities into course production schedules and workloads. No systematic evidence was collected from DEOs, senior teachers, parents or other teacher-trainers on their perceptions of the effectiveness of the course and its impact on classrooms.

However, there was informal evidence available over a period of time from regional meetings, tutors and students which reported the course as being useful, relevant and valuable. Some questionnaire data is also available from teachers on the 13th PTOC cycle (see Table 8.9).

Most teachers in the study thought the PTOC to be useful, relevant and increased their understanding of educational theory. Questions about practice were not pursued.
COSTS

The main sources of funding for AIOU were grants from the government of Pakistan, student fee income and grants in foreign aid. The funds for producing PTOC initially came from the first grant (PC-1) to AIOU from the government of Pakistan, together with grants (1976–78) of Rs 1,600,000 from the government of the Netherlands to cover the cost of printing (AIOU, 1979, p. 19). The course was provided free to teachers, though they had to pay their own travel costs and expenses for attending local tutorials and examinations (a significant cost for many of them).

Course costs

There are several difficulties in establishing and analysing the costs of the PTOC. AIOU’s financial systems during the life of the PTOC did not record costs of course development and did not permit costs to be identified at the many different levels of study (such as Intermediate, BA and MA, among others). Detailed information about presentation costs are similarly not available. A model of course production costs was produced for the first time in preparation for the 1989 evaluation of the University (Sargant et al., 1989) and since then AIOU has been developing systems which should make it possible in the future to cost courses in detail. Establishing the costs of PTOC is further complicated by the fact that the cost data for this case study was collected retrospectively: much was not recorded by the institution itself, some was incomplete, and where more than one source was available, some of it was contradictory.

What follows is an indication of approximate costs based on the information prepared for the 1989 evaluation. This produced average production costs for courses at Intermediate, BA and MA levels. It found that the overall production cost of a course was greatly influenced by the balance between internal and external writers (external writers involved lower costs) and by the number of television or radio programmes required. Half-credit courses with television or radio were disproportionately expensive (Sargant et al., 1989). On the basis of these costs, the cost of an intermediate-level course (the level of PTOC) including 18 radio programmes was approximately as follows:

- Written and reviewed by external experts: full credit Rs 197,000; half credit Rs 142,000
- Written and reviewed by AIOU internal staff: full credit Rs 303,000; half credit 195,000

PTOC was a full-credit course. The PTOC was, at least in its first production, written largely by internal AIOU staff (the extent of external contributions is
not documented, nor are the cost of revisions and rewrite), so its course production cost is estimated at Rs 303,000.

Cost per graduate

As part of the 1989 evaluation, an attempt was made to examine the cost per graduate. This necessarily involved some broad assumptions, but was able to come to the following cautious conclusions:

Cost of a graduate at conventional university = Rs 18,850
Cost of a graduate at AIOU = Rs 8,670 to Rs 12,000
(A range has been calculated for AIOU costs, because of the broad assumptions made).

(Sargant et al, 1989)

Thus an AIOU graduate appears to cost between 45 per cent and 70 per cent of a graduate from a conventional university. However, these figures do not take into account the substantial proportion (about 35 per cent) of the AIOU’s costs which the students themselves pay through their fees. Taking this into account, the net cost of a graduate at AIOU will be in the range of Rs 5,680 to Rs 8,500. Taking the 1989 conversion rate of Rs 20.541 = US $1.00 and deflating to constant 1988 dollars we get a range of 1988 US $268 to $401. So in terms of graduates, the AIOU appears to be cost-effective in comparison with a conventional university.

If we convert these gross graduate costs into an approximate cost per semester (Rs 8,670 to Rs 12,000) ($409 to $566), the per semester cost for successful graduates would be Rs 1,650 to Rs 2,285 ($78 to $108). This calculation uses an average cost over the financial years 1982–83 to 1987–88 and an average time for graduate completion. A reasonably legitimate conclusion from this is that the PTOC cost per completer (given comparable completion rates) would be in the same range, that is Rs 1,650 to Rs 2,285 ($78 to $108).

Cost of alternatives

The PTOC programme was seen by AIOU at the time as being a much cheaper alternative than the conventional equivalent, if one had existed.

A comprehensive inservice training programme for 50,000 teachers through the conventional means would have been an almost impossible task to accomplish in three years. Also, the expenditure on a conventional 4–6 week course concentrating on the syllabus for one class or one subject for 47,000 teachers at the rate of Rs 1,200 per head (according to the Planning Commission estimates in 1975) would be Rs 564 lacs. It may be interesting to point out that the total recurring
expenditure of the University during the last five years (1974–79) was Rs 222.68 lacs, (say Rs 223 lacs), i.e. about 40 per cent of the above mentioned figure. The economies of scale and the cost effectiveness of the system are brought into more prominent relief when one considers that the Primary Teachers Orientation Course, though a major programme, was by no means the only effort of this University.

(AIOU, 1979, Preface, p. iv)

There was no conventional equivalent of the PTOC course to make direct comparison with. However, the cost of the PTOC after development costs, taking overheads into account, is given by Abbas (1987) as less than Rs 190 per teacher (no detailed costs are given). She contrasts this with a full-time six-week in-service course (seen as the equivalent time for doing the PTOC in a face-to-face setting), costing from Rs 1,200 to Rs 1,400, ignoring the cost of absence from the classroom. A different conclusion is reached by Bukhari, who concludes that the cost of each PTOC completer was, in fact, Rs 1,400, about the same as the conventional equivalent (taken to be a six-week course as above). Taking an AIOU estimate (1986–87) that the university cost per student course was approximately Rs 543 (with Rs 453 as recurring cost and Rs 90 as non-recurring cost) for post-matriculation level courses, he argues if this figure is applied to the total enrolment of PTOC (83,568), the total cost comes to Rs 45 million; the cost per completer (31,674) arrived at is Rs 1,400. This too does not take into account substitute teacher costs. It is difficult to draw conclusions from these different estimates in the absence of firmer data.

Cost to students

Students had to pay their own costs associated with taking the course (though it was provided free), such as travel to tutorials and examination centres. The time taken for this and for study involved some measure of foregone earnings or supplements to income, though it is not known how much. There was no eventual financial benefit to be gained by the teachers from taking the PTOC course. For the employers, the gain was more visible: teachers remained in their schools; the course was delivered to them so no travel or residential costs were involved of the kind needed for in-service education and training of teachers (Inset) courses at Extension Centres; the teachers studied in their own time.

CONCLUSION

How successful was the PTOC as a means of updating primary teachers in the new curriculum? Did it provide effective in-service education for them?

The PTOC was successful in reaching large numbers of teachers who would not otherwise have such clear and widely delivered information about the new
primary curriculum. It was particularly successful in providing access to this for rural and female teachers. The learning materials were specially designed to be more learner-friendly than traditional texts and they also provided teachers with a permanent set of reference materials in a country where textbooks are scarce. They communicated the curriculum changes directly to teachers and provided a common standard of information throughout the country, avoiding the wide variability of course quality and training that can characterise more local and individual implementation of Inset programmes.

Though reaching large numbers of primary teachers, within a timespan previously impossible in Pakistan, the PTOC did not achieve its original target of 155,000 teachers in three years. This may be seen, in retrospect to have been an unrealistic target. However, it would probably have been possible to reach more teachers, given different circumstances. Two problems dogged the programme: difficulties in recruitment and a high non-completion rate. Both of these related to factors outside the programme and outside the control of AIOU as well as to factors within AIOU’s own distance-learning system, which was not without faults, as course evaluations reported.

The key to many of the problems in implementing the PTOC more effectively was the provincial-federal relationship. Despite AIOU’s efforts, the PTOC was not strongly integrated with provincial planning. The provinces gave higher priority to supporting their own projects than to supporting the PTOC, which they viewed to some extent as competing for their resources. A sense of ownership and input to federal plans on the part of the provinces has been difficult to achieve for other education programmes. Federal and provincial plans for educational change and their identification of priorities have not always coincided and have at times conflicted.

It is not possible to say how cost-effective the PTOC programme was because the information to do this was not available, for reasons described. But it is possible to say that the PTOC demonstrated that distance learning was an effective way of reaching teachers on a large scale, and paved the way for the development of further teacher-education programmes including initial teacher training for serving and pre-service teachers. AIOU now offers a wide programme of teacher-education courses.

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In-service initial training of teachers


The unit titles for the 13th cycle (October 1983 to March 1984) were as follows:

1. System of education in Pakistan
2. Teaching of Urdu
3. Urdu Reading
4. Urdu writing
5. Set theory (Mathematics)
6. Geometry and Graphs
7. Arts and Crafts
8. Adult Education
9. Ideology of Pakistan
10. Plants and Animals (Sciences)
11. Matter and Energy
12. Earth and Universe
13. Evaluation Examination
14. Physical Health and Hygiene
15. Methods of Teaching
16. Social Studies
17. Islamiat

(Rashid, 1985a, p. 28)

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Continuing education
9 Educating teachers at a distance in Australia: some trends

Terry D. Evans and Daryl E. Nation

Distance education has had an important place in the education of teachers in Australia throughout the twentieth century. This has been especially the case for primary-school teachers wishing to obtain further qualifications through part-time studies. Central to this chapter is a discussion of the results of a research project with a group of primary teachers pursuing such studies in the late 1980s in the state of Victoria. These results are discussed against a background which provides details of the development of distance education for teachers in Australia, recent trends in higher education in the country more generally, and specific proposals for the use of distance education for both award courses and in-service education for teachers.

Restructuring education in Australia

Parallel to events elsewhere in the world, ‘restructuring’ and ‘reconstruction’ are key terms in economic and political debate, policy making and practice in contemporary Australia. John Dawkins, who became Minister for Employment, Education and Training in the second Hawke Labour government in July 1986, made restructuring economic rationalism fundamental in educational reform.

Dawkins’ primary goal was a reorganisation of the overall structure of higher education. There were two related fundamental aspects of this re-organisation: the creation of larger, more cost-efficient institutions through mergers; and the elimination of the distinction between universities and colleges of advanced education (CAEs). Two issues of importance for the present discussion, the continuing rationalisation of both teacher education and distance education, were associated with these proposals. Dawkins was also keen to reform industrial training as a part of the Hawke government’s economic restructuring. More recently, he has turned his attention to primary and secondary schooling, putting major emphasis on achievement of a national curriculum and a national structure for the employment of teachers. (A more
detailed discussion of these issues has been provided by Smart and Dudley, 1990).

Given that these are merely some of the Minister’s reforming activities, it may surprise readers unfamiliar with Australian education to learn that the national government, in which he was a minister, does not hold constitutional responsibility for education. Therefore, a brief discussion of the political structure of Australia will be useful. This will be followed by a discussion of the development of teacher education and distance education in this country against a background of the emergence of higher education more generally.

Australia’s political structure

Australia is a federation with a constitutional framework which is broadly comparable to Canada, Germany and the US. In 1901 six independent British colonies joined together as the Commonwealth of Australia. The national government, known as the Commonwealth, has limited constitutional responsibilities relating to national and international matters; all other responsibilities are held by state and territory governments, which now number eight. Gradually, the Commonwealth has gained pre-eminent power over taxation and finance. This has allowed successive governments to use financial powers to influence policy and practice outside the Commonwealth’s direct responsibilities. This has been the case particularly in the politically sensitive area of education.

The Commonwealth entered education through its direct responsibilities in its territories. This was largely for schools in the Northern Territory but included the planning and funding of the Australian National University in the national capital city Canberra. In the late 1950s the Commonwealth established the Australian Universities Commission and began to provide the states with supplementary funds for their universities. In the late 1960s the Commonwealth provided the policy framework and finance for the states to create the CAEs, commenced special-purpose funding for both public and private schools, and began to offer families assistance with educational expenditure. All these activities have required the often grudging cooperation of state governments.

The Whitlam Labour government (1972–75) increased Commonwealth expenditure in many areas, including education. It also pioneered the use of statutory bodies, often titled commissions, which were vehicles for Commonwealth initiatives in policy making; this was especially the case with the Australian Schools Commission and the Commonwealth Tertiary Education Commission (CTEC). The Liberal/National Fraser governments (1975–83) decreased Commonwealth educational expenditure from nine to seven per cent of total outlays and the Hawke government shifted the figure to 7.6 (Smart and Dudley, 1990, p. 204). The Fraser governments neutered the statutory bodies for education and the Hawke ministers abolished them.
The Australian Education Council (AEC), a regular meeting of state and Commonwealth ministers and department heads, has become progressively a more important context for discussion and, to a limited extent, policy making.

The development of teacher education

As is common in the development of all systems of education, in Australia the education of teachers has developed in harmony with structural changes in its systems of schooling. In Australia in the late eighteenth and early nineteenth centuries, following a British pattern, education was regarded as a private matter and schooling was provided largely by churches. By the mid-nineteenth century the colonial governments were beginning to take considerable responsibility for elementary schooling. This was driven by a need to deal with religious rivalries between Anglicans, nonconforming protestants and Catholics. It was also propelled by the political views of colonial politicians who believed the state should play a central role in education. As a consequence, by the late nineteenth century each Australian colony had a system of state elementary schools which were ‘free, compulsory and secular’. Outside these systems a small group of church schools, with high fees, catered for wealthy families, and Catholic schools, provided by parishes and religious orders, catered for poorer members of their faith. The governments provided no finance for church and other private schools and this remained the case until the 1960s.

Until the late nineteenth century elementary-school teachers were educated as apprentices in all systems of schooling. From this period onwards employers of teachers, private schools, colonial and state governments and Catholic teaching orders began to create teachers’ colleges for the training of their employees. From then until the 1940s primary-school teachers, as they came to be called, were educated by a mixture of apprenticeship and college courses. Until the 1940s college courses were one year in duration. By the 1960s two-year courses had become the norm and in the 1970s three-year courses were introduced. In the 1970s a structural shift occurred in teacher education: the state education departments ceded control of, and financial responsibility for, the teachers’ colleges to the Commonwealth government. Soon after that the Catholic school systems reorganised their training systems to create autonomous colleges which could be funded by the Commonwealth government. In the late 1970s the colleges created a four-year Bachelor of Education (BEd) course for primary teachers. However, the Commonwealth government has refused to fund four-year pre-service programmes for primary teachers and a three-year Diploma of Teaching has become the typical basic qualification. Most employing authorities have encouraged their teachers to complete the BEd by part-time study. Despite pressure from the colleges, the teachers’ unions and a few state government officials, the Commonwealth
government has steadfastly resisted funding four-year pre-service education for primary teachers.

A four-year qualification has been the standard for secondary teachers throughout Australia since the late 1970s. Before this time a minority of secondary teachers, particularly those in arts, crafts, domestic science and trades, were able to be registered with less than four years of training. Most of these teachers were educated in teachers’ colleges. The majority of secondary teachers have always been educated in universities by completing pass degrees and one-year postgraduate diplomas in education. Many primary teachers have undertaken university courses to qualify as secondary teachers. From the 1970s many of the CAEs introduced four-year integrated BEd courses for secondary teachers.

Distance education for teachers

Distance education has always played a significant role in the professional development of teachers employed in systems of education catering for the mass of the population in both developed and developing societies. This has been especially the case for teachers in primary schools. It has also been a feature of societies which have many schools in country towns and remote areas, with few regional teacher-training institutions which can serve their teachers. Distance education has been fundamentally important during the early and middle phases of the development of systemic education when, typically, primary teachers were required to begin work after a very short period of formal full-time training (sometimes with none at all) and were expected to complete further qualifications by part-time study. From the first decade of the twentieth century, Australian education systems began to provide correspondence courses to allow primary and secondary teachers working in provincial and rural areas to improve their qualifications through part-time study.

As Bolton (1986) has shown, European settler societies such as those in Australia have had to develop viable forms of distance education to educate children and adults who were necessarily remote from schools, colleges and universities. In 1910 and 1911, respectively, the governments of Queensland and Western Australia established universities which were specifically directed to provide correspondence courses for students in rural areas. In the era of post-war reconstruction, all of the Australian universities had significant numbers of external students. In 1945 there were 2,740 in total, with Sydney and Melbourne having 1,072 and 872 respectively. The numbers soon dwindled in all but Queensland and Western Australia, as the emergency passed. However, in 1955 the University of New England began external teaching, at the legislative direction of the New South Wales government (White, 1982).

In the 1970s an external studies boom began in Australian higher education, and by the 1980s there were 48 colleges of advanced education and universities in the field (Dawkins, 1988, p. 49). In 1990 almost 22,000 equivalent full-time
students were enrolled as external students in Australian colleges and universities, which is about seven per cent of total enrolments. Over a quarter of these external students were enrolled in teacher-education courses. The Hawke government undertook a restructur-ing of distance education in the late 1980s, which led to a national system of distance-education centres (DECs) being announced in 1989. From this point, these eight DECs were to be the foci of external higher education in Australia, including external professional education for teachers (Johnson, 1989). The Commonwealth government has established the National Distance Education Conference (NDEC) as a forum within which the DECs and the specialist providers of distance education in higher education could regulate the use of resources themselves and provide policy advice to the government (Kennedy, 1990).

Until recently, the performances of various distance-education providers have been very uneven in terms of educational quality. These have ranged from approaches which have individual lecturers ‘sending out some notes’, to well-organised systems which have slowly improved the scope and quality of their performance over time. The established providers now provide printed and audiovisual teaching materials of high quality and have developed systems of tuition which maximise the advantages of distance education (Johnson, 1989). Research such as White’s (1982) does not deal with them, but a careful reading of institutional histories suggests the existence, at the margins, of many poorly conceived and poorly resourced schemes of correspondence education which justify the label ‘poor substitute’. Research by the authors confirms the development of such a scheme in Victoria during the 1950s and 1960s, which had grown up to provide for the examination system of the Education Department’s in-service qualifications improvement scheme. By the 1970s it had been transformed into a higher quality enterprise and by the mid-1970s it was overtaken by the external studies programmes of two colleges and a university (Evans and Nation, 1988, pp. 52–5).

Teachers have always figured prominently as students in Australian colleges and universities teaching at a distance. Much of the activity during the boom years was in providing courses for teachers who were required to improve their qualifications to gain or maintain employment or to increase their chances of promotion. For example, in the first five years of external studies at the University of New England, teachers constituted over 80 per cent of all enrolments. The absolute numbers increased until the mid-1960s and then dipped to a plateau of around 2,000; the proportion of teachers has now declined but still stands at about 40 per cent (Smith, 1979, pp. 20–30). A recent survey by a professional organisation of teachers, the Australian College of Education, found that approximately one-fifth of its national sample of teachers were undertaking formal courses and over half of them were studying through distance education (Logan et al. 1990, pp. 26–7).

Harris’ (1987, p. 28) research into the Open University in Britain suggests a similar pattern. Teachers constituted about 40 per cent of the first intakes, which was by far the biggest single occupational category. Harris reports no
Continuing education
evidence of testimonials, but detects ‘an instrumental orientation’ whereby teachers were primarily concerned with gaining maximum credit for previous studies. ‘None of those interviewed’, he reports, ‘had chosen the course because they felt in need of some new thinking about education’ (Harris, 1987, pp. 110–13).

Recent surveys of provision in less developed countries confirm that the professional development of teachers is one of the major objectives for distance-teaching colleges and universities (Coldevin and Naidu, 1989; Jenkins, 1989; Rumble, 1989). These studies chart a teacher supply problem of staggering dimensions, and demonstrate that the only viable means of overcoming these shortages is to produce teachers for schools as soon as possible and to continue their education part-time, in their own communities, through distance teaching. One interesting point arising from these surveys, however, is that the situation described by the present authors in post-war Australia has a lot in common with third-world realities. Many primary teachers had no college training, governments were reluctant to extend college courses beyond a year, and teachers had to make do with a patchy provision of opportunities; without distance education many could not have improved their qualifications and/or their professional prospects (Evans and Nation, 1988, pp. 50–5).

Rationalising teacher education and distance education

After their incorporation into the CAEs in the mid-1970s, the former teachers’ colleges exchanged the direct bureaucratic control of education departments for the more remote administrative control of the state co-ordinating authorities and the Commonwealth. For a few years increased funding and more local control over their courses, including the possibilities of expansion outside teacher education, provided a brief spurt of spirited development. By the end of the decade, however, the Commonwealth was seeking reductions of student numbers in teachers’ courses and mergers of institutions. The rationalisation of distance education, discussed above, was related to these moves.

The rationalisation of distance education is important for our purposes because it is the main context in which costing and efficiency matters have been considered. The combination of previous mergers and the structural changes which occurred in the creation of the DECsa amounted to a major rationalisation of teacher education at a distance in all states. In 1988, immediately prior to the creation of the DECsa, there were 19 substantial and nine minor providers. In 1990 this had become nine substantial providers of which only one, Queensland University of Technology, is not within a DEC (based on Johnson, 1989, p. 36).

In the early 1980s two of the states, South Australia and Victoria, carried out rationalisations of distance education, both of which involved significant attention to teacher education (Ramsey, 1988, esp. pp. 85–6; Wishart, 1981). The Commonwealth began to address this issue during the first Hawke
Government, when Susan Ryan was Minister for Education and Hugh Hudson was Chairman of the CTEC (Ryan, 1985). Ryan (1985, p. 19) established a committee, chaired by Richard Johnson, which was to work with CTEC ‘to promote co-operation between institutions and across States, and sectors’. The Minister suggested that the ‘providers have acknowledged that there is duplication of effort, and that there are gaps in provision and inefficiencies caused by the very small scale of some operations’ (Ryan, 1985, p. 19). A key member of the committee was Vernon White, who headed the distance-education division of one of the regional CAEs. With a background as an economist and an attraction to an industrialised model of distance education, White steered the committee towards a course which would restructure the system on the basis of economic rationality. Dean Ashenden, a political adviser to Ryan, was another influential member of the committee (Ashenden and Costello, 1984).

Ashenden (1988) has suggested that he began to push costing issues in the policy and planning discussions because this was a practical means of promoting distance education on the political and bureaucratic agenda. In a discussion paper, which was one of the substantial bases of the restructuring which created the DECs, Ashenden (1987) canvassed both Australian and overseas data and theory relating to costing. He drew three conclusions which would be generally endorsed by bureaucrats and managers concerned with distance education in Australia:

> the integration of external and on-campus studies does make possible some economies...the basic structure of costs seen in single purpose institutions such as the UKOU is also to be found in Australia external studies... Distance education makes possible significant economies of scale and, conversely, penalises operations which are not carried on at an appropriate scale.

(Ashenden, 1987, p. 10)

Ashenden and Johnson’s committee, now defunct, did manage to put costs on the bureaucratic agenda. At the time of writing they are on the NDEC agenda. The Commonwealth has continued to sponsor studies in this area and these now form part of the working papers for NDEC’s working party on funding. There is evidence that teaching at a distance can be considerably cheaper than on-campus teaching. In the teacher-education field, for example, it has been estimated that off-campus teaching costs between 40 and 75 per cent of on-campus teaching (Interex, Table B). However, there is no agreement from key decision-makers about the reliability of figures such as these. In a system where students are taught both on- and off-campus and governments provide funds on a per-student basis, administrative realists and scholarly sceptics would tend to agree that the ultimate outcome of all costing investigations will be that, at the macro level, there is little difference in the cost per student for each mode of teaching.
At the time of writing the system is still settling down after the ‘Dawkins hurricane’. It is too early to judge whether the new structures will endure in distance education and teacher education and in the wider system. Before the dust has settled a proposal for massive changes in teacher education has been developed under the auspices of the AEC. These proposals involve a significant use of the DECs. The Commonwealth has continued to fund initiatives in the in-service education of teachers which use distance education. Before turning to a detailed discussion of these issues we would like to dwell upon some results from a research project which has yielded detailed evidence relating to the 1970s and 1980s.

THE DISTANCE EDUCATION AND THE CONTINUING EDUCATION OF TEACHERS PROJECT

The Distance Education and the Continuing Education of Teachers (DECET) research project began in 1986 as a study of primary teachers who began the fourth year of BEd degrees as distance students in Victoria during that year. The project had its genesis in our experiences in the early 1980s as teachers of a part-time external studies unit entitled Sociological foundations of education. The BEd course of which this unit was a part catered principally for trained primary teachers who wished to complete the fourth year of the degree, although other teachers and even non-teachers could enrol in some individual units from the course depending on the circumstances. We had been school teachers ourselves and had maintained strong and varied contacts with the school system since we entered tertiary teaching. Our academic backgrounds as sociologists led us to analyse and explain many of the circumstances which surrounded school teaching and teachers in terms of social, historical, political and economic considerations. In sharing these analyses with the teachers (as our students) we became increasingly interested in the part that distance-education courses played in the professional development or continuing education of teachers and how these courses were used by teachers, both in studying the courses and in building their subsequent careers. This interest led us to establish the DECET project so that we could explore these and other research issues through studying a cohort of primary teachers in relation to historical, social and policy information.

The project began in 1986 with a questionnaire survey of all primary teachers (364) who had enrolled in a fourth-year BEd course at one of the four Victorian institutions which offered these through part-time distance education. The questionnaires were distributed by post and were accompanied by an explanatory letter, which also guaranteed confidentiality, and a reply-paid envelope. A reminder letter was distributed three weeks later to non-respondents and any subsequent non-respondents received a further reminder letter with another questionnaire and reply-paid envelope three weeks later. In total 241 questionnaires were completed and returned which represented a
response rate of 66 per cent. The response rate from our own institutions, Deakin University and Gippsland Institute (now known as Monash University College Gippsland),² was 72 per cent (see Evans and Nation, 1987, pp. 5–7).

Fifty of the respondents to the survey from Deakin University and Gippsland Institute were selected for intensive interviews. Interviewees were selected on the basis of their age, sex, educational background, location and teaching experience. Such selection criteria were used in order to ensure that there were teachers who reflected the ranges one might expect within the primary teaching profession in Victoria; these criteria were not used for statistical purposes such as representativeness, cell size, and so on: such statistical analyses did not form part of the research. The teachers were interviewed during the early part of their courses in 1986 and again six to nine months later, which placed them at the end of their first year or into the second year. Most teachers take between two or three years part-time to complete a fourth-year BEd course, which is equivalent to one full-time year of study. The teachers were usually interviewed in their homes, although occasionally in their schools, and all the interviews were cassette tape-recorded and transcribed. Contact has been maintained with some of the teachers and it is planned to do follow-up interviews with the teachers later in their careers.

Historical data were collected mainly through secondary sources, current policy materials were collected as they emerged from government, union and other bodies, and commentaries on them were collected as they were published. Institutional costing was not a focus of the study, although details were collected through both the survey and interviews of the financial, social and opportunity costs which students incurred.

Theoretically, the project is founded upon social theories which regard humans as active engagers with the social structures that surround and involve them. In this sense the teachers are both shaped by and able to shape the social structures of which they are a part. From this perspective, which is strongly informed by the social theorist, Anthony Giddens, teachers’ careers can be seen as part of a broader biography of individuals’ engagement with society. We understand that industrial capitalist societies, such as Australia, are structured around occupation (social class), gender, race and geographical location, and that people within society (especially teachers?) have capacities to construct their own biographies and influence those of others.³ This approach has led us to see the project as concerned with how their experiences of part-time distance education fit into their careers as teachers. Broadly, we are interested in the social forces which led them into these experiences and how they engage with them.

In addition to this chapter, three other publications have provided information on DECET: results from the survey (Evans and Nation, 1987); an extended discussion, based upon the interview data, of the teachers’ disappointment with the ‘lack of relevance’ of the knowledge presented to them in their courses for their professional and personal lives (Evans and
Continuing education

Nation, 1988); and a discussion of distance education and teachers’ professional development (Evans and Nation, 1991).

SELECTED FINDINGS FROM THE DECET SURVEY

As was mentioned previously, the questionnaire was distributed to 364 primary teachers enrolling for a fourth-year BEd course at a distance in Victoria of whom 241 responded. Seventy-nine per cent of the respondents are women which is slightly higher than the proportion (75 per cent) of women teachers in government primary schools in Victoria (Ministry of Education, 1987, p. 7). However, our survey included teachers from non-government schools where the percentages of women are generally higher than for government schools. In interpreting the survey findings, it is important to appreciate that virtually four out of five responses are from women and that it is, therefore, very much a women’s perspective which is being revealed. We shall take up matters of gender later in the chapter in relation to data collected in the interviews.

One of the matters we wanted to pursue in a broad way in the questionnaire was why teachers chose to improve their qualifications. Our understanding of the primary-teaching career structure in Victoria led us to believe that there were several powerful reasons why some primary teachers might seek to improve their qualifications. In particular, we were aware of the salary and promotional barriers which existed for those without four years of approved tertiary education. However, the teachers of such professional development courses are not inclined to think of such utilitarian matters when they develop their courses; indeed, it seemed to us that our teacher-education colleagues often had much more serious academic inten-tions in mind: they appeared to be concerned with giving teachers knowledge, skills and values which they saw as commensurate with being a good teacher in the contemporary circumstances. Therefore, we asked the teachers to write down the reasons (any number—typically people gave one or two) which led them to decide to improve their qualifications. Table 9.1 shows the number of times teachers gave a reason within the specified categories. For ease of interpretation we have listed the reasons in descending order of popularity.

We can see from the figures in Table 9.1 that the teachers were principally concerned with what might be called the status and utilitarian aspects of improving their qualifications. Mostly they were interested in becoming graduates (that is, holding a degree rather than ‘just’ a diploma) and/or with obtaining promotion to (for some, a return to) a teaching position, secure employment or increased income. Two-thirds of the reasons given by the teachers were in these categories and only one-third were in the categories which may be described as involving the intrinsic merit of professional education. This is congruent with Harris’ (1987) findings that teachers as students at the Open University (UK) often displayed fairly utilitarian views
of their studies. This has cost implications in the sense that the link for the participants between completing their courses and increased salaries and salary prospects through possible promotion is an important motivating factor. This is a key costing element, although it is not borne by the institutions, but rather more broadly by the employing authorities and those who fund them. However, if one takes the view that the remuneration for more senior positions in primary schools would need to be paid anyway, then introducing a structural barrier to access to such positions in the form of a fourth-year qualification has the effect of turning this into a motivating factor for professional development courses leading to the BEd. It seems clear from our survey that many teachers (perhaps as many as two-thirds) are unlikely to undertake this sort of further study if the increased salary and promotion incentives or equivalent are missing.

We also asked the teachers what led them to choose to study at their particular institution which, of course, partly meant choosing to study at a distance. This represented an important aspect of the questionnaire for us because we recognised that primary-school teachers teach in contexts which are characteristically intense, personal, face-to-face educational contexts and that deciding to learn for themselves at a distance might represent a powerful disjunction for them. Also we were aware that many professional development courses in Australia (and elsewhere) are increasingly using distance- and open-learning approaches. As we have discussed previously, we knew that teachers have often been in the student vanguard of such forms of professional development and it seemed important to pursue this matter initially in the survey. Accordingly, we asked teachers to give their reasons for choosing their BEd institution—again they could give as many reasons as they wished and typically they gave one or two. Table 9.2 shows the numbers of times teachers gave a reason within the specified categories. Again, for ease of interpretation we have listed the reasons in descending order of popularity.

One of the most notable features of Table 9.2 is that most teachers preferred the distance-teaching institution which was nearest to them. This seems to suggest that the distances involved in distance education are important to the students and that they endeavour to reduce them as much as possible. However,

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain degree</td>
<td>84</td>
</tr>
<tr>
<td>Eligibility for promotion</td>
<td>55</td>
</tr>
<tr>
<td>Obtain (re)employment or job security</td>
<td>52</td>
</tr>
<tr>
<td>Updating knowledge</td>
<td>46</td>
</tr>
<tr>
<td>Improve salary</td>
<td>40</td>
</tr>
<tr>
<td>Develop professionally</td>
<td>39</td>
</tr>
<tr>
<td>Personal enrichment</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 9.1 Victorian primary teachers’ reasons for improving their qualifications, 1986
it is probably more complicated than this, as factors such as the recommendation of others, who are likely to be colleagues or friends in the same locality, and the reputation of the institution are likely to be interpreted more strongly and positively within the region of the institution in question.4 The table also shows how insignificant the content of the courses was to the teachers’ decisions to enrol. This is consistent with Table 9.1, where the utilitarian reasons for deciding to improve their qualifications predominated. This suggests that the teachers were not attracted to the idea of improving their qualifications or to particular institutions by their knowledge of, or the apparent attractiveness of, the courses themselves.

**The gendered nature of primary teachers’ study**

As was alluded to previously, understanding the nature of distance education for the professional development of primary teachers cannot be done properly, in our view, without due recognition of the ways in which gender structures the work, lives and study of primary teachers. Clearly, internationally gender is an issue in all aspects of social life, and primary teaching is one important locale for gender to be regarded critically (Acker, 1989, p. 1). Most professions, trades and occupations, not to mention the bureaucracies and political structures of nations, are firmly in the grip of men, whereas primary teaching seems, at first glance, to be a rare example of a profession dominated by women. Evans, however, has observed of teaching in Victoria that although women vastly outnumbering men ‘might suggest an affirmative action policy for men…closer scrutiny of the distribution of men and women…shows that it is men who hold the positions of power’ (Evans, 1988, p. 58). He explained that the promotion climb from classroom teacher to principal takes about 20 years of teaching. It is a route which usually requires four promotions, several changes of school, some shifts of home and family and, most importantly for our research, almost always some formal study to improve qualifications.

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locality/proximity</td>
<td>90</td>
</tr>
<tr>
<td>Distance teaching</td>
<td>90</td>
</tr>
<tr>
<td>Recommendation/reputation</td>
<td>58</td>
</tr>
<tr>
<td>Previous student</td>
<td>28</td>
</tr>
<tr>
<td>Range of courses</td>
<td>23</td>
</tr>
<tr>
<td>Course/materials</td>
<td>7</td>
</tr>
<tr>
<td>No attendance requirements</td>
<td>7</td>
</tr>
<tr>
<td>Other reasons</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 9.2 Victorian primary teachers’ reasons for choosing their BEd institutions, 1986
The teachers in Catholic primary schools (13 per cent of survey respondents) whom we interviewed reflected a group of women who really had minimal career opportunities in comparison with those working in government schools, where there are several career steps to be taken on the climb from beginner teacher to principal. The Catholic schools generally had classroom teachers and a principal, sometimes with a vice-principal and usually with co-ordinators of curriculum areas and so on. These latter positions carried no extra remuneration and often little reduction in teaching hours in order to fulfil the additional responsibilities. Some of the teachers explained that the culture of the schools and the teaching profession itself was such that the power and authority of men in the Church flowed into the management and organisation of the schools, especially through the priests and other leading laymen in the parish churches who occupied positions on the schools’ governing bodies.

Some of the Catholic primary schools where the teachers worked were staffed entirely by women, typically with a nun as principal. Over recent years the numbers and proportions of nuns teaching have been declining. Some of our interviewees worked in schools where their principals had been nuns who had retired or left the school for other reasons and they were replaced by laymen/women. Stella Jones was a teacher in a Catholic primary school who went to a Catholic teachers’ college. She recalled that in her final year at college ‘the males got the jobs first’ irrespective of their final grades. At the time of the first interview her current school was looking for a new school principal to replace the nun who was due to retire. At the time two of the staff of 18 were men. When the matter was discussed by the parish priest at a staff meeting the word ‘he’ was used in the description of the sort of person the school management committee was looking for, which, as Stella reflected, implied that none of the women in the school were eligible. In her view, the management committee were looking for a Catholic family man. By the time of the second interview the new principal had been appointed. Stella Jones explained how the school was different nowadays:

Well, it was run by a nun last year and she was really efficient. Probably the most efficient person I know of. You worked at her pace really quickly and everything got done very thoroughly and that was a bit hard to keep up with sometimes. And this year because he [the principal] is married with four children, he likes to go home at 4:30 or whatever, so he thinks you can go home too and the weekends are your own...the pace is more realistic, I suppose.

In the government system in Victoria it is much more likely that the principal of a primary school is a man: in 1987 only 16 per cent of primary-school principals were women (Ministry of Education, 1987, p. 12). Traditional gender relations make such promotional climbs in primary teaching much more arduous for women than men. Sampson (1991) argues that as so few
women make it to senior positions in teaching in Australia, one can question if there are such things as women teachers’ careers in the promotional sense. Whereas men are expected to be breadwinners and to pursue promotion partly to enhance their breadwinning capacities, women are expected to shoulder the majority of parenting and domestic responsibilities. In effect, men are expected to eschew the efforts and rewards of parenting (and escape most domestic chores!) while they pursue a teaching career, and women are expected to subjugate the efforts, rewards and recognition of a teaching career to the almost socially invisible careers of parenting and domestic work (Acker, 1989). Such subjugation is reinforced by religion in the Catholic and other religious schools.

The traditionally gendered nature of parenting meant that several of the women in our study (20 per cent of survey respondents) were not currently working in schools because they either had resigned some years ago to look after their children or had taken what is called ‘Family Leave’. Those who had resigned often returned to study to improve their chances of being re-employed because preference is given to those with four-year qualifications. Both groups of parents, however, often saw that their absence from the classroom provided a good opportunity for them to study, especially as they saw that other teachers would have improved qualifications in their absence and that returning to teaching with a family to look after would provide them with much less opportunity to study. A disadvantage that some of these teachers felt, especially if they had been out of teaching for several years, was that they both were unfamiliar with contemporary teaching practices and issues, and were unable to relate their studies to current work as teachers. In contrast, they saw the opportunity to study as a chance to update their knowledge before they returned to teaching.

It is worth noting how these teachers were unpaid and yet they were working at study. This represents a significant personal investment in their future careers and, therefore, can be seen as an asset to which their employers do not contribute. Arguably, except for the very few teachers who are able to obtain some form of study leave, this is the case for all teachers who improve their qualifications; they typically receive no financial or other assistance from their employers.

**Working as a teacher and studying**

As we have shown, the majority of the teachers were working as primary-school teachers during their BEd study. This raises some issues concerning the inter-relationships between their work and study. A typical workload for a BEd student studying half-time (that is, completing the course over two years) is expected to be about 20 hours per week. This includes studying the course materials, reading course texts and references, and completing assignments. In addition, some of the teachers we interviewed also had the opportunity to attend (and occasionally were required to attend) weekend schools, evening tutorials, and so on. This raises the question of how working primary-school teachers find this substantial amount of time to complete their courses,
especially when they have family responsibilities. It also raises the question for us, as distance educators, of the extent to which the courses which the teachers were following drew upon, and contributed to, their professional practice as teachers. Clearly, one way to manage the additional study workload for teachers would be if this partly overlapped with their professional work.

We found that there was little direct overlap between study and teaching work. Although there were often assignments which could be done within their professional practice, these were invariably an extra form of work to be carried out at school, although they often did provide an additional professional benefit to the one of completing a course assignment or task. The problem for most distance (and, therefore, part-time) students is trying to co-ordinate the schedules of work, family life and study. Jane Ingles provides a typical example. She said that in her first semester she found it extremely hard…going back…to studying…the actual work I did not find difficult at all, just the time element and the workload …that was a very heavy workload, I don’t mean just for me as a housewife and mother, but for any student.

At the time of her second interview, Jane had completed the second semester and commented on the difficulties she experienced with a unit in which she had apparently been doing very well:

I don’t quite know what happened…the first three essays, the first…I got an A for it, the next…I got an A+, the major one…I got A, and the last one…I got a C+.\(^8\)

She was mystified as to why her grade dropped for the last assignment because the only criticism she could find was that:

I followed the study notes, I did the study guide, I followed the class lessons or the workshops…but she [the lecturer] said I didn’t include anything new, but all the new stuff came a week after the assignment was due in. I was very annoyed…we were led to expect this letter telling us to write everything out in detail…where to find extra books and it didn’t come until the Friday after the assignment was due in. I just have to have everything done a lot at a time… In the last month I have had three assignments and a ballet concert to prepare for. My daughter had six costumes to be done in six days.

Here we can see the difficulties of someone who is trying to fit her study around her family commitments; these difficulties were increased when some expected additional course material failed to arrive on time and her tight study schedule was disrupted. One can see that as a teacher and parent, the addition of a substantial study commitment such as a BEd means that the capacity to
cope with other disruptions in any of those areas is extremely limited. Jane Ingles described her teaching work:

It’s not 9 to 3:30. I would say from the time you leave home to 5:30…there is a lot of evening work and maybe weekend work and other things you have to attend [to]. You can’t switch off. You go to bed in a very bad situation, because those children can get to you. Even their family lives, if the child is in a bad situation it can really hurt you mentally or emotionally… I think that stress can be related [back] to the children as well.

She portrays a teacher’s work as being demanding, not just in terms of hours of work, but also in terms of the emotional demands of working with children and their parents. She believes that her friends and acquaintances outside teaching are realising that you have to have a fairly good tertiary education to get a reasonable job…they can understand the amount of work that you have to put in…they say, ‘How are you coping with all that work?’ I say, ‘You do it.’ My best times to study are between ten [p.m.] and three in the morning.

It is when one is given a glimpse of the sort of work involved by primary teachers, especially women like Jane Ingles, that one becomes aware of the substantial demands they are making on their personal, professional and emotional lives in order to invest in their professional development. It is difficult to place a value on all this work in both a social and an economic sense, not only because the benefits are difficult to demarcate, but also because these benefits do need to be set against the costs involved both individually (for the teachers) and socially (especially for the schools). Several of the teachers said that the first priority was to their teaching and that study came second. However, as Jane Ingles shows, the teachers generally schedule their time so that everything has a sufficiently high priority to be completed on time. Some of our teachers recognised that, although their teaching was seen as their first priority, when an assignment was due they allowed their studies to take first priority for a while. Sometimes this even extended to them taking a (‘sick’) day off from school to complete an assignment when matters really became difficult.

It was clear from the interviews that any teacher who was trying to fulfil professional, parenting and study commitments could only do so at some cost to each of the commitments and to the people involved, not least to themselves. It is important for distance educators who work on courses for people involved in professional or other work to recognise these matters and to try to develop and implement courses which minimise or take account of their consequences. One might also suggest that employers might be more accommodating in the ways they allow for their employees to work and study because they, too, benefit from having more highly qualified staff.
Balancing theory and practice

In an earlier paper we discussed the attitudes of the teachers we interviewed to the balance between theory and practice in the units offered by their courses (Evans and Nation, 1988, pp. 58–61). One of the most frequent themes in the interviews was the relevance of the knowledge which they encountered for their professional work. Most expected that the course would provide ‘relevant knowledge’, with these words being the common actual terminology. However, it is also clear that this is a complex issue.

Jill Black, who was in her eighth and ninth years of teaching when we spoke to her, suggested:

I feel you go through college when you are young, you’ve never worked before and you never had…experience with children and now when you have a few years behind you and you come back to studying, everything you can relate to something you have seen, or you have done, or you are doing. I find it very relevant really.

She made the comparison between the college course and the Early Literacy Inservice Course (ELIC), which she completed in ten evening sessions the year before:

I have talked to a lot of people and it [ELIC] was good, but I found what I was doing at the Institute better. I don’t know why, maybe it was the assignment system. With ELIC you had to do a small task but you weren’t assessed on anything. Whereas, what I was doing at the college, I felt I was getting more quickly… Yet ELIC is a terrific course for teachers and…I got something out of it, but I felt I was getting more out of my college…although it [ELIC] goes for ten weeks, it is not structured in the same way. It has a lot of very good, refreshing ideas and things, but it doesn’t pace as quick. I am just wondering whether it was to do with the assessment now.

A contrasting opinion was expressed by Claire Taylor, who found ELIC much more useful than her college course. Her objection to ELIC was that it did not count towards a credential, unlike the less relevant college course.

A younger man, who had been working as an emergency teacher in an effort to obtain his first permanent position, had a more practical orientation. Rod Dinsen expressed it thus:

I prefer doing a unit that is useful, I can use it in a room and it is more practical. Heavy philosophical units are of no use. I want one to help me and how I am teaching.

Martina Coles spent the three years after her graduation from a regional CAE
in part-time work, including some emergency teaching, and travelling overseas. Upon her return to study she had completed three years in a permanent position as a classroom teacher. She enjoyed a unit on children’s literature, but disliked one on learning to read because some of the assignments meant working with the children in the classroom and I really benefited from that and I also really enjoy doing writing with the children. But this one [on learning to read] wasn’t what I expected…it was a bit too theoretical… I hated doing it!

While the rejection of theory and philosophy was not universal, it was a common theme. As we have suggested elsewhere, our findings confirm those of Harris (1987) and Lortie (1975). However, as we comment in the other context, it is not distance education as a mode of teaching and learning which creates this problem (Evans and Nation, 1988, p. 58). On this note we can leave this discussion of research findings and return to the more general consideration of recent activities and proposals for the use of distance education with Australian teachers.

**DISTANCE EDUCATION AND CONTINUING EDUCATION FOR TEACHERS**

Facing the 1990s it is clear that Australian governments, school systems, universities and teachers (through their many and varied forms of collective organisation) believe that various forms of distance education will continue to play important parts in the pre-service and in-service education of teachers. There is general uncertainty in teacher education; all that is certain is that all future activities will need to occur with no real increase in expenditure. At the rhetorical level, few would quibble with the statement by the Schools Council, a body of representatives of all sectors of schooling, which advises the Commonwealth on general policy:

> The Council strongly supports the contention that the professional development of teachers should be viewed as a continuum, commencing at pre-service, moving through entry and induction and continuing with regular in-service education throughout teachers’ careers and that it should be of a nature and type relevant to their experience, career position and clients’ needs at that time.

(Schools Council, 1989, p. 15)

In recent years there have been initiatives in both policy and practice which assume an important, if not central, role for distance education in teachers’ professional development. We shall begin with the policy debates relating to pre-service education, which are not yet resolved and then move to the calmer waters of practical achievements within in-service education.
The fundamental problem in pre-service education relates to the length of course for primary teachers. In 1989 the Schools Council declared emphatically ‘that sooner or later four-year training must be a necessary minimum for the great majority of teachers’ (Schools Council, 1989, p. 21). However, its joint statement with the Higher Education Council contends that:

the lengthening of any pre-service teacher training beyond three years should only occur if there is a negotiated agreement with the higher education institutions,…government and non-government school system authorities and the profession for an integrated program of professional work and further study which is acceptable to funding authorities.

(National Board of Employment, Education and Training, 1990, p. 7)

This implies that the recommendations regarding an associate-teacher scheme under discussion at the Australian Education Council have very little chance of successful implementation in the immediate future.

The recommendations are made in the Teacher education in Australia report prepared by an AEC working party chaired by Fred Ebbeck (Ebbeck, 1990). There seems little doubt that the working party well understood the competing demands on it from teachers, teacher unions, teacher educators, government ministers, and educational and other bureaucracies. Although the changes proposed in the report are radical in the sense that, in total, they require substantial ideological and practical changes to implement them, taken individually each of the proposals can be seen to have its antecedents and adherents. In this sense the report advances ideas which are not greatly different from those found, either in teacher education in the past, or in other professions at present. However, it is the particular combination of these ideas—and arguably the ideological positions which underpin it— which constitute a radical change for teacher education. And it is a change which the authors believe will be impossible to implement fairly and effectively without distance education, which is why the DECET research may have some particular relevance.

Teacher education in Australia outlines the working party’s ‘preferred pattern’. Such a pattern would:

- involve the commitment of the employing authority, the school and higher-education institution to a partnership in providing a planned, two-phased programme to prepare a fully qualified professional teacher
- equip the student teacher with a first degree (such as a BA (Teaching) or BSc (Teaching)) after a three-year pre-service course
- enable the graduate to be employed as an associate teacher on half a teaching load and half salary
- require the associate teacher to undertake a part-time or external course leading to the professional degree of BEd.

(Ebbeck, 1990, p. ii)
We propose to analyse some of the features and potential outcomes of these three main elements to the working party’s preferred pattern both in terms of the detail in the report and in terms of our research into the use of distance education for the continuing education of teachers.

The proposal to introduce a two-year internship, following a basic three-year degree, into the professional preparation of primary teachers could be seen as creating an educational structure comparable to those which have been employed for 75 years in the ‘established professions’ such as architecture, dentistry, law, medicine and veterinary science (Clements, 1974). The working party sees it as important to achieve an all-graduate profession; indeed, the end result is a double-degree profession analogous to medicine.

In another sense it is more of a return to a structure which was employed in the training of primary teachers in the first half of this century: a period of on-the-job training, using an apprenticeship approach, following a period of broadening general education (years 9–11 in a secondary school, that is, third to fifth form) (Nation, 1978). This comparison cannot be pushed too far, as clearly the report envisages considerably more theoretical education during the internship than the pupil-teacher system ever realised. However, that version of this system, which had trainee teachers proceeding to teachers’ colleges after two or three years of pupil teaching, could be seen as an inversion of the current proposal.

The pre-service three-year degree is intended to retain its teaching focus and to be located in schools or faculties of teacher education in the universities. However, the general studies components of these proposed degrees will affect the nomenclature of the award (BA, BSc, BBus, and so on) although it is proposed that the word ‘teaching’ will appear in parentheses after the award. The working party is clear that it wants such awards to be seen as the foundation for all teachers and wishes to remove ‘the rankling distinction between primary and secondary sub-sets’ (Ebbeck, 1990, p. 30). However, it is not specific in requiring that this be the case.

The teachers in the DECET project, in common with their colleagues elsewhere in Australia, were registered as primary teachers in their particular state. Teachers can only be employed in state (or registered private) schools if they are registered to teach, and the registration process monitors not only the qualifications of the teachers themselves, but also the curricula of the teacher-education institutions. There are strict guidelines about such matters as the duration and areas of study which are appropriate, and also about the amount and nature (primary or secondary) of supervised school practice that must be included. In addition, for secondary teachers, the subject areas of their pre-service qualifications determine what subjects and at what levels they may teach. Hence, there is not the flexibility in Australia (as there is in the UK) for teachers to move between primary and secondary schools because few teachers have the qualifications to be fully registered as both primary and secondary teachers.

It should be mentioned that the proposed pre-service degree is, in effect, a three-and-a-half-year degree because the working party sees that there is room for an additional semester’s work to be squeezed into the final two years. The
implication is that this work will largely involve school practice and will be included at times when schools are open during the non-teaching parts of the university academic year. Presumably, this teaching experience, and the courses which surround it, will cover both primary and secondary teaching in order for the teachers to be able to move to either (or both?) primary or secondary schools for their two years of associateship teaching and study.

The Schools Council’s suggestions regarding distance education assume a much more traditional pattern.

The Commonwealth decisions regarding…[DECs] also have implications for teacher education, although more at the in-service level. If the three-year diploma courses remain the main vehicle for the preparation of primary and secondary teachers then it will continue to be important that the opportunities for teachers to upgrade the diploma to a degree are not in any way reduced. As a great many teachers, particularly in those states large in area and with dispersed populations, do this through external studies they will be affected by the recent decisions on… [DECs]. Teachers may have to complete their degree with a different institution from that where they obtained their original qualification and there will be a need for some coherence and continuity for the course to be of benefit. One suggestion is that teacher education departments should be able to offer their version of the upgrading course (e.g. to BEd) through a…[DEC].

(Schools Council, 1989, p. 27)

In the joint statement referred to above these suggestions are confirmed with regard to upgrading and distance education, although the two Councils signal their support for the view that ‘teaching at all levels…should have a degree as its initial professional award’ (Schools Council, 1989, p. 7).

The report of the Inservice Teacher Education Project, Improving Australian schools through inservice teacher training and development, which is the main report in a series known as Teachers learning, is the latest in a lengthy list of research and investigatory reports relating to the inservice education of teachers (Boomer, 1988). It has received solid endorsement from the Schools Council and the AEC working party. Its accompanying reports, Some exemplary practices in inservice teacher training and development (Andrews, 1988) and The role of higher education institutions in inservice teacher training and development (Johnson, 1988), have received similar endorsement. A recent venture is the Distance Learning for Inservice Teacher Education (DLITE) project which is based at Queensland University of Technology and involves consultants from each state.

A close reading of each document suggests that various forms of distance education play a humble but unique part in both award and non-credit courses offered to teachers as in-service education. Of the 232 projects listed in the national Directory of exemplary inservice practice nominations, only 17 (seven
per cent) could be identified as employing distance education in some form (Andrews, 1988, pp. 131–80). Two of the 15 case studies, which Andrews discussed in more detail, involve distance education: the Remote and Isolated Schools Teleconference Sked (RISTS) project and ELIC by Telecourse. Both are aimed at teachers in rural Queensland. Consideration of some details from the case study should illustrate both the principles behind this example of distance education and the reporter’s conceptions of this method of ‘delivering’ in-service education.

The telecourse served teachers at ten locations in rural Queensland. As is conventional with the ELIC course, the teachers were expected to meet weekly in groups of eight to ten. The course was ‘taught’ from Brisbane by tutors using teleconferencing technology and by some broadcast television programs via Q-NET. The students were supplied with more prepared printed and video course materials than is usual in the conventional course. A field officer in each area provided local tuition and support. The telecourse was able to maintain the fundamental feature of the ELIC course by having experienced practitioners, who are well versed in the theory behind the course, in weekly contact with practising classroom teachers who were applying the theories to their own practice. In 1987, 66 schools were involved and 197 teachers completed the course. A correspondence version of the course has also been developed. The case study opens with a ‘gee-whizz’ embrace of high-tech.

New technologies are frequently claimed to have the potential to improve communications in a way which will revolutionise many aspects of life. This is already evident in areas of telecommunications, shopping and banking. Similar changes have begun to occur in educational programs, especially in providing improved curriculum offerings, administrative support and teacher inservice activities in rural and remote schools. In recent years a number of State education systems have trialed new technologies for these purposes.

(Andrews, 1988, p. 101)

Distance education plays a part in two of the six activities which Johnson (1988) selected to illustrate effective contributions by higher-education institutions to in-service teacher education. The most impressive example is a combined Graduate Diploma of Reading and Language and Tutor Training Program offered by South Australian College of Advanced Education in cooperation with the Education Department, Catholic Education Office and Independent Schools Board in South Australia. In outline:

The program uses a Core plus Options modular structure and has at its centre teachers gathering and sharing data from their students and colleagues. Teachers are encouraged to take a critically reflective stance to try out theories and ideas to observe children closely, and to be constantly questioning, reading, experimenting, challenging and cele-
brating their own theory and practice. Assessment takes the form of participants writing a series of articles targetted at fellow practising teachers.

(Johnson, 1988, p. 28)

The graduates of the program are expected to practise as tutors in a materials-based project providing in-service education for middle-school language teachers. In 1987 the course was offered as a six hours’ a week campus-based programme to 33 students. During that year the staff developed the course materials for the external studies programme. In 1988 there were 54 students in the on-campus programme and 32 country students studying through distance education. The ‘external students receive ten TRT (Temporary Relieving Teacher) release days plus travel and accommodation support for two visits to Adelaide during the course’ (Johnson, 1988, p. 28).

Two other documents offer evidence of the use of distance education for the in-service education of teachers: a report of the House of Representatives Standing Committee on Employment, Education and Training, An apple for the teacher? (Brumby, 1989) and a Commonwealth Schools Commission report, Schooling in rural Australia (1988). The latter mentions and endorses some of the evidence and conclusions from Teachers learning. The former provides an extended review of the current use of educational technology in Australia and makes a detailed case for its widespread adoption. It emphasises the role educational technology can play in the in-service education of teachers in non-metropolitan areas and offers further evidence of needs and achievements. For example:

In Tasmania one teacher trained in French and German was required to teach Indonesian. She sat in on about 30 teleclasses from La Trobe High School and at the end of the year attended a one-month intensive summer school at the Australian National University. She then…was able to teach Indonesian on a face-to-face basis in her school, all without being removed from her normal school.

(Brumby, 1989, p. 78)

Clearly, many of those involved with the projects and reports discussed above believe that, essentially, distance education is for country residents, with very restricted access to conventional educational institutions; there is also a view that distance education should increasingly use ‘new communications technology’ to escape from correspondence education. (For a comprehensive discussion along these lines see Conboy and D’Cruz, 1988.) These views are probably held widely in society at large. Certainly, all the innovations discussed above are both necessary and possible and are worthy of being extended. However, even significant progress down this path fails to recognise the full potential for distance education throughout teachers’ educational and professional development and is in danger of diverting its progress into rather narrow technical and industrialised developments.
The capacity for distance education in Australia to be used creatively as a basis for both individual and collective, award and non-award, professional development for teachers throughout their careers has yet to be realised. While it behoves distance educators to convince their professional colleagues of the efficiency and effectiveness of their approaches, it is incumbent on those who work in conventional educational settings to take careful notice. They should base their judgements not on blind traditional faith, but on the bases of a critical awareness of the strengths and weaknesses of face-to-face teaching and, above all, on the professional and personal needs of teachers.

NOTES

1 The DECET project was supported by funds and resources from Deakin University and the Gippsland Institute. The fieldwork was implemented by the authors and Dr Joan Martin, and the interview transcription was completed by Mrs Jenny Luscombe.

2 As we have discussed previously, during 1990 many higher-education institutions in Australia merged under the influence of the Australian government. In addition, there has been government intervention to reduce the numbers of institutions teaching at a distance in Australia. The effect of these two moves has been that only three of the four Victorian institutions offering BEd courses at a distance now do so and two of those have merged so that there are now two institutions offering such courses.

3 Our theoretical approach has been explored further elsewhere: more details can be found in Evans and Nation, 1984, 1987 and 1988.

4 One of us has discussed the issues of distance in distance education in more detail elsewhere: see Evans, 1989 and 1990.

5 All names of interviewees are pseudonyms to preserve their anonymity.

6 The term ‘domestic’ is used in this chapter to refer to the forms of everyday, unpaid work that are required to maintain a home, for example, cleaning, washing, shopping, cooking.

7 All teachers in Victoria are entitled to take up to seven years unpaid Family Leave to look after young children. This leave can be taken by either parent as long as only one is on leave at a time.

8 The assessment was graded on a five-point scale from A down to D, below which were fail grades. Plus and minus signs denote if the assessment was, respectively, just above or below the letter grade.

REFERENCES


with the National Distance Education Conference working party on External Load Funding, January 1990, Perth.


The involvement of the UK Open University (OU) in teacher education may seem surprising in some ways since the United Kingdom is a small country where distances are not great for much of the population, where communications are good and where there is a considerable number of colleges and universities offering teacher-education courses of all kinds (over 90 institutions offer a variety of in-service courses for teachers in the UK). What kind of role can distance education play in teacher education in these circumstances? This case study examines the role of the OU in in-service teacher education.

**THE UK OPEN UNIVERSITY**

The OU is a large national distance-education institution which provides multimedia courses and materials in a variety of subjects and at a number of different levels. The OU has three major remits in its Charter: to provide opportunities for adults to study for degrees, for professional and technological updating, and for the educational well-being of the community. It presented its first courses in 1971, with an enrolment of 19,580 students on undergraduate courses only. By 1990 it had 72,622 undergraduate students; 11,574 associate students (on one-year courses); 595 postgraduate research students (Masters’ and PhD); 4,191 taught Masters’ degree students; and 15,817 specialised short course student registrations (Planning Office figures, OU, 1991).

As well as courses, the OU produces packs of learning materials which do not form part of a course and have no learner assessment; 62,174 of these packs, on over 150 different topics, were sold in 1990.

Approximately 6,500 students a year graduate from the OU that is, approximately eight per cent of all first-degree graduates from UK universities; OU undergraduates are 13 per cent of all registered UK undergraduates (*Planning Office StatSheet* 91/2; OU, *Review of the Open University*, 1991, p. 8). The median age of undergraduate students is 34 years, that of graduates 39; about 50 per cent are female. The undergraduate
Continuing education programme offers 140 courses; 49 per cent are arts-based, 51 per cent science-based. Students taking education courses at the undergraduate level currently form 3.5 per cent of the 74,750 undergraduates (Daniel, 1991) though many more teachers take courses in other faculties.

A degree with the OU is obtained through gaining credits—six for a BA degree and eight for a BA Honours degree. A credit is studied for 440 hours over one year (from February to October, a 34-week academic year). It involves about 12 hours’ study a week; a half-credit course runs over the same period but for about six hours’ study a week (220 hours). Assessment is by course work and an end-of-year three-hour examination. Students normally take six years (for a BA degree) or eight years (for a BA Honours) to complete their studies. Students can also register for a single course as a one-year associate student.

As well as undergraduate courses, the OU provides a rapidly growing programme of continuing education in six broad areas: management, scientific and technological updating, health and social welfare, professional development in education, personal and cultural education, and community education. This programme is offered through courses (short and long) and through packs of learning materials. As can be seen, teacher education is only one part of the OU’s broad range of activities.

The OU’s courses are constructed by course teams of academics, media producers, editors, external writers and course assessors, designers, course co-ordinators or managers. The main medium of learning is print. This is integrated with other media, such as television and radio, or increasingly, audiocassettes, videocassettes and home computers. Not every course includes every medium though all use print. Television and radio have national coverage, and programmes are produced and broadcast in collaboration with the British Broadcasting Corporation (BBC). Home experiment kits are provided to students for some courses, such as science. Some courses have up to a week’s obligatory residential school.

A regional network of 260 study centres and approximately 5,500 part-time tutors and counsellors support students in their learning. There are 13 regional centres, with an average of 40 full-time academic, administrative and clerical staff in each. The regional centres organise tutoring and counselling, as well as enquiry and advisory services. A tutor is allocated a group of about 25 students for the year and is responsible for assessing students’ work, providing detailed correspondence tuition and supporting students through face-to-face meetings (group and individual) and other forms of contact (telephone, letters and, on some courses, computer communication). The number of hours given to each tutor for tutoring students is on average 14–15 hours per academic year for a full-credit course, and seven to eight hours for a half-credit. Foundation-course tutors have more tutoring time (about 40 hours per year) than second- and third-level tutors. This allocation does not include time taken to mark and comment on students’ work. Changes are under way at present to decentralise some operations by locating student
registration and other administrative processes in the regions. All regions are linked to the central campus at Milton Keynes and to each other by a computer network and internal telephone system.

The above is a brief description of a large and complex distance-teaching organisation in which teacher education is one of many functions. How then has it engaged with teachers and teacher education? We will begin this account by outlining teacher education in the UK and chart some of the changes which have influenced the OU’s provision for teachers and which help explain its role.

TEACHER EDUCATION IN THE UK

In the 1950s and 1960s, there were two routes to qualified teacher status. One was by a certificate from a teacher-training college (later ‘college of education’) gained after two years’ full-time study begun at age 18 or more. This consisted of academic subject content and the theory and practice of teaching, in preparation for either primary- or secondary-school teaching, though secondary schools attracted more graduates. In 1960–61, the two-year training period was extended to three years. The second route to teaching was by a degree in any subject. Graduates could then either teach without further qualification, or opt to take a one-year Postgraduate Certificate in Education. This was a full-time course in the theory and practice of teaching for primary or secondary teaching. Both of these routes usually attracted grants for full-time study. Unqualified teachers were not employed in government-maintained schools (91 per cent of schools in the UK).

The 1970s saw the development of an all-graduate profession for teachers in training. A four-year Bachelor of Education (BEd) degree was begun, awarded by the colleges of education, validated by local universities. This meant that teachers who had trained earlier and who did not have a degree were at a disadvantage both financially and in terms of career prospects. Teachers earned the same basic salary whether they taught in primary or secondary schools; differences in pay depended on individual qualifications and additional salary increments attached to posts of special responsibility. Graduates were paid more than non-graduates. The significance of this development for the OU was that there was a pool of certificated teachers without degrees (250,000 out of a total of 400,000 in the late 1960s); a proportion of these were seeking ways to upgrade their qualifications to graduate level. Few part-time study opportunities then existed. These teachers were highly motivated to embark on further study when the opportunity became available. At the same time, there was an expansion of in-service education.

In-service education and training for teachers (Inset) has a long tradition in the UK. Inset in this context refers to further professional development for qualified teachers, and not to initial teacher training for serving but unqualified
Continuing education

It was mostly provided through short courses held away from the teachers' schools, usually in term time, though a very small number of longer-term secondments for further study (a term or a year) were also available. In the 1960s particularly there was wide recognition of the importance of Inset in a number of major education reports and a policy of Inset expansion, especially on the part of local education authorities (LEAs), who are responsible for the administration and management of education at a local level. From 1965 onwards LEAs set up teachers’ centres. These acted as local curriculum-development and in-service centres, had full-time centre leaders and grew to over 500 in number by 1972. Inset courses were also provided by others: by universities, institutions of higher education, and the Department of Education and Science (DES), a central-government department responsible for education in England. The trend towards more Inset work was strongly supported by the *James report: teacher education and training* (Department of Education and Science, 1972), though not all of its recommendations were carried out because of economic constraints.

Inset continued to be increasingly important throughout the 1970s and 1980s as a means of accommodating a series of changes in education and of improving the quality of teaching in specific areas, such as the teaching of children with special needs, the teaching of reading or the management of schools. More recently, Inset has included the function of retraining teachers for shortage subjects, such as science, mathematics and technology. The UK has a declining school population while at the same time a shortage of qualified teachers in some subjects and some inner-city areas. The new National Curriculum (a consequence of the 1988 Education Reform Act which, among other things, empowered the Secretary of State to prescribe a common national curriculum) has required primary teachers to teach some subjects for which they feel ill-prepared. This has created a new set of needs for Inset courses.

The UK Inset scene has been a rapidly changing one, particularly over the last few years. This is reflected in the OU’s profile of education courses and activities. All higher education providers of in-service education for teachers in the UK have been significantly affected by the recent radical changes. While these have provided increased opportunities for teachers to do in-service work, they have also meant that ‘the whole enterprise of INSET is tied more to fulfilling national, local and institutionally defined training needs than towards fulfilling developmental needs identified by individual teachers’ (Day, 1989, p. 195).

A major impact on the provision of Inset was new government policy in the methods of funding Inset work (Department of Education and Science, 1986). This was implemented through the Local Education Authority Training Grants Scheme (LEATGS) which gave the responsibility for identifying needs and for meeting them to the LEAs and schools, especially to the latter. With the introduction of the LEATGS came a major shift of control away from the providers of Inset (higher education) to the consumers (the LEAs and schools).
At the same time the DES identified national priorities which attracted preferential grants in the LEATGS scheme.

The new funding policy had immediate effects. First, there was a large drop in the number of teachers seconded from schools to take ‘long’ in-service courses (such as an MA). In 1986–87, there were 2,112 full-time one-year secondments of teachers to take courses at higher-education institutions (Wragg, 1989). This fell to 439 by 1988–89 (McBride, 1989). Since the introduction of LEATGS funding in 1986, the LEAs have needed to secure value for money. One indicator for this can be cost: for example, one teacher’s secondment can pay for many more teachers’ part-time or evening courses. One development in response to this has been an increase in the number of in-service part-time courses on offer by conventional institutions. There are now very few full-time secondments.

Second, there was an increase in demand for short or one-day courses stemming from locally identified needs. This resulted in much small-scale, short-term Inset activity within schools or clusters of schools on a variety of topics, as they attempted to keep abreast of a succession of rapid changes. The nature of Inset work was also affected by new pressures on teachers themselves. Teachers were faced with several major changes in their working lives over this period: for example, new kinds of contracts were introduced; negotiating rights for pay were removed after a serious pay dispute; and the Education Reform Act of 1988 introduced major curriculum and assessment changes in schools.

As a consequence of these changes, new kinds of Inset provision have arisen. Also shaping this was the growing dissatisfaction over the last decade with the ineffectiveness (and sometimes irrelevance) of much traditional in-service provision. Out of this has grown school-focused Inset and enquiry-based courses. School-focused Inset is now the preferred model on which government initiatives are based. All higher-education providers of Inset have been working to accommodate these changes and to develop new accreditation schemes for teachers’ Inset work in schools. These kinds of changes have particular implications for a provider of Inset through distance education, as we shall see.

THE OU AND TEACHER EDUCATION

The possibility of using distance teaching for teacher education or training did not figure prominently in the earliest plans for the OU. The University’s original degree lines were in humanities, science, social science and mathematics. Technology and educational studies were added in the course of 1969 during the later phases of planning (Perry, 1976, p. 75). By 1974, ten credits’ worth of courses out of a university-wide total of 87 were allocated to educational studies. It had been expected that a very high proportion of teachers would be among the first entrants to the University and this proved
Continuing education

to be the case (Perry, 1976, p. 68). In 1971 (the first year of course presentation), 40.1 per cent of enrolled students were teachers, out of a total registration of 19,581. Courses in educational studies were developed to meet some of the needs of this group.

There were three reasons for the large number of teachers applying to the newly established OU. First, the OU had been written about in the educational press and had advertised itself widely there. Second, graduate status for teachers provided them with an automatic and significant salary increase according to the national Burnham pay scales for teachers, and also enhanced their prospects of promotion in an established career structure. Third, the publicity information for the OU had offered incentives in the form of exemptions from some parts of the degree to those applicants already holding higher-education diplomas, including the Teacher’s Certificate (the initial teacher-training qualification). So the OU at that time provided the quickest and often the only available route to graduate status for some teachers. The OU welcomed this group of students for the reasons given by the first Vice-chancellor:

> It was much better to have as our first students a large number of school teachers who were motivated, well prepared and with time for study. If we succeeded with them we would not only have gained the time needed to polish our methods so that ultimately they might work effectively for less prepared entrants, but we would also achieve the academic recognition that would enable us to tolerate higher drop out rates.

(Perry, 1976, p. 144)

Teachers were not restricted to taking education courses. They could construct their own individual degree profile of courses from any faculty. An approved programme consisting of only one foundation course and a minimum number of education courses allowed them a quicker route to the completion of a degree.

Because the Faculty of Educational Studies was not set up to meet a specific training need, it was able to some extent to create its own role, particularly in the earlier years. Initially, the Faculty of Educational Studies offered undergraduate courses in four discipline areas similar to those found at the same time in conventional universities: psychology of education, sociology of education, curriculum planning and educational administration. However, once the main structures of the OU were in place, and large numbers of students were registered, the potential for the OU to make a wider national contribution to teacher education was soon recognised.

The OU has not provided initial teacher training (except in one limited collaborative form) although plans for doing so are currently being developed with the DES. From 1994 the OU will provide postgraduate initial teacher-training places for 1,000 primary and secondary teachers in England and Wales, funded by a £2.3 million grant from the DES. Most OU provision until
now has been directed towards Inset, either through the upgrading of teachers by degree courses or through the further professional development of graduate and non-graduate teachers alike. More general courses in education have also been offered, attracting non-teachers and others working in the broad field of education.

The OU has also at times been commissioned by external agencies to produce materials to support educational change on a national basis. In 1985 the Secondary Examinations Council (a centrally appointed committee responsible for secondary-school examinations) commissioned the university to prepare materials to disseminate information about the new General Certificate of Secondary Education, the national examination taken by 16-year-olds. These were sent to every secondary school in England and Wales. A similar exercise took place in 1988, when an introduction to the new National Curriculum was produced at the request of the National Curriculum Council for distribution to all teachers. Other externally funded commissions have been for school governors, for teachers linking to business and industry, and for adult literacy.

The proportion of teachers on OU undergraduate courses has declined over the years as much of the earlier demand for degrees was met. In 1989, eight per cent of new undergraduates and 11 per cent of continuing ones were teachers on enrolment (about 15 per cent of the total number of undergraduate students) compared to 40.1 per cent in 1971. However, teachers were still the second largest occupational group in the students graduating in 1989 (17.9 per cent). While the number of undergraduate students on education courses declined to 3.5 per cent of the total in 1991, the number of associate (one-year) students following professional development courses has increased to outnumber them. The taught MA in Education has rapidly grown to become the largest Masters’ programme of its kind nationally with 2,200 students in 1991 (about 40 per cent of all part-time MA in Education registrations at universities in England and Wales).

As the above shows, the OU has been engaged in broad-ranging and changing provision for teacher education. Whether this is to be viewed as an effective policy for meeting a wide range of needs or as the OU’s search for a clearer role in contributing to teacher education can be debated. The rationale for the programmes and their development has to be considered not only as a result of the OU’s earlier recruitment of teachers as students, but also in the context of the changes in Inset described earlier. These have significantly shaped the OU’s programmes and courses.

**OU EDUCATION COURSES**

Teacher-education courses are mostly produced in the School of Education (formerly the Faculty of Educational Studies). The School of Education does not provide degree courses at foundation-course level, but only at the higher
levels of study. It has approximately 55 central academic staff (lecturers), 20 regional academic staff (staff tutors) based throughout the UK, 13 academic course managers and co-ordinators, and six editors, all full-time. The School provides courses in the areas of psychology, curriculum and assessment, educational policy and management, language, educational computing and adult education. Inset has also been provided in collaboration with the Science, Mathematics and Technology faculties, with special funds from the DES for alleviating teacher shortages in specialist subject areas, for example, in physics for secondary-school science teachers (Tresman and Whitelegg, 1989).

Programmes and courses

In 1989 there were 9,869 student-course registrations on School of Education courses (a small proportion of students may be taking more than one course). These were distributed across courses as shown in Table 10.1.

As well as students who registered for courses, there are numbers (unknown) of teachers working in school or LEA groups who are using OU packs as the basis for further professional development activities, often school-focused. Over 50 different packs are available on a range of topics including maths and science education, special needs, reading and language, and post-compulsory education. These aim to help teachers strengthen existing skills, to develop new ones and to gain understanding in depth. Many of the packs have received direct government subsidy since they related to national curriculum priority areas. This meant that they could be purchased at a lower price by teachers.

A pack is a collection of printed, audiocassette and/or video materials on a topic, for example, ‘Every child’s language’, or ‘Girls into mathematics’, or ‘Making school centred inset work’. Some other providers (for example, higher-education institutions or LEA advisers) also use the packs to support short courses or one-day Inset events. The extent of their use is indicated by the fact that approximately 16,600 packs of resource materials in education were sold in 1989, bought either by individuals or by groups.
The OU offered the following education courses in 1991, at different levels and for different target groups of teachers; the courses fall within undergraduate, advanced diploma, taught Master’s degree and professional certificate programmes. Courses range in length from 55 hours of study to 440.

**Undergraduate courses**

Personality, Development and Learning  
Exploring Educational Issues  
Special Needs in Education  
Curriculum and Learning  
Management in Post-compulsory Education  
Managing Schools  
Policy Making in Education  
Education for Adults  
Cognitive Development  
Communication and Education  
Computers and Learning  
Developing Mathematical Thinking  
Frameworks for Teaching  
Living with Technology: a Course for Teachers.

**Advanced and Professional Diplomas (Part B courses)**

(The courses above form the first part of the Diplomas.)  
Applied Studies in Educational Management  
Applied Studies in Mathematics Education  
Applied Studies in Learning Difficulties  
Teaching and Learning Technology in Schools  
Technology and Education: a Conversion Course.

**Diploma in Post-compulsory Education**

Approaches to Adult Learning  
Open Learning  
Counselling  
Programme Design and Assessment  
Providing for Special Needs: Policy and Practice  
Delivering Non-vocational qualifications  

**MA in Education**

Educational Evaluation
Continuing education

Classroom Studies
Gender and Education
Educational Organisations and Professionals
Language and Literacy
Dissertation
Education, Training and Employment
Management in Education
Curriculum, Learning and Assessment
Child Development in Social Context

Professional Certificate in Education

Teachers into Business and Industry
Mathematics in the Primary Curriculum
Assessment and the Primary Curriculum
Professional Development in Action
(More courses are in production).

(Open Opportunities Brochure, 1990; Taught Master’s Degree Prospectus, OU, 1990)

In line with external trends in accreditation, the courses are designed to fit into a coherent programme, with several entry and exit points for students. Some courses in one programme count as a contributing credit to another, to provide an incentive to students to continue to study.

The target audience

Students on teacher-education courses are self-selected. Most study in their own time and the majority pay their own fees and expenses. Teacher-education courses are not provided free to teachers by the OU. A minority of undergraduate students (about 25 per cent) and a larger proportion of MA students (about 60 per cent) receive some funding from the LEAs who employ them or who provide local services where they live. The audience for teacher-education courses has been a diverse one. Client groups have included:

- certificated non-graduate teachers studying for a first degree
- students aiming to become educational psychologists, taking courses approved by the British Psychological Society
- teachers (graduate and non-graduate) taking a one-year course to improve their professional expertise in a particular field, for example, the teaching of reading or mathematics
- groups of teachers sponsored by LEAs to take particular courses as part of a LEA’s own Inset plan (for example, in the management of schools, or children with special needs)
undergraduate students intending to become teachers and wishing to include some education courses in their degree in preparation for a one-year postgraduate training course at another university or college
— teachers taking an MA in Education to further their careers
— students who have children of their own and wish to learn more about education and child development
— advisers in LEAs who are themselves responsible for providing in-service for teaching staff.

These different client groups can be found mixed together on any one course, resulting in diversity of audience within both courses and programmes.

Course design

The focus of education courses has been on the theory and practice of teaching and learning. Academic subjects such as mathematics or English literature, history or physics have been the province of the other faculties; many students in any case already have a high level of subject knowledge, especially if they have a first degree. Education courses have concentrated on the development of understanding of curriculum, learning and organisational issues as well as the theory and application of discipline areas, such as psychology and sociology. In the 1980s interest grew in subject teaching (maths or science courses which combined both subject content and pedagogy) and in specialist areas (such as the teaching of children with special needs or the management of education).

Although updating of knowledge and understanding of concepts are some of the goals aimed for, many courses also aim to relate theory to practice, and require students to carry out and evaluate practical activities in the classroom, school or institution. Such activities are structured and guided within the course materials and their organisation and conduct is then left to the student, since there is no supervision of classroom practice. How far this translates into changed practice is not known; it can only be judged from the written work the students produce and self-report surveys. From our own limited perspective of reading students’ written work and of tutors’ written comments on assignments over several years, we judge that many students conduct good-quality work towards this end.

Assessment

Assessment is by course work and examination, though there is often a desire on the part of the course teams to move towards the assessment of course work alone, especially for project-based courses. Course work counts for not less than 50 per cent and sometimes as much as 70 per cent of the final mark.
Although computer-marked assignments for education courses were first experimented with, they were soon abandoned as being inappropriate, though they are used for other courses. Multiple-choice questions are not used, either in course work or in examinations.

The role of examinations has given rise to considerable debate. The University is reluctant to dispense with the conventional written examination, because it is felt that this remains the most cost-effective way of ensuring that students have prepared their own assignment work. However, within the world of in-service education there is a growing view that it is an inappropriate way of assessing the professional development of teachers, and many institutions have abandoned the practice. In the circumstances the OU risks being perceived as reactionary and outdated. The University has responded by allowing, in certain circumstances, a proportion of a qualification to be obtained without a written examination, but the alternative procedures which it requires (such as double marking) are expensive and difficult to organise on a large scale.

In course work, essay-type assignments are common, sometimes based on critical reporting of a piece of practical work conducted by the student. Course work can involve both formative and summative assignments, in a two-stage negotiated process between tutor and student. At the formative stage, the student submits work to the tutor for comment, advice and feedback. At the summative stage, the student’s assignment is assessed by the tutor and a mark awarded which contributes to the final grade. There is a growing use of project assignments, sometimes forming the structure of a complete course, particularly at higher levels. Such courses are designed to lead the student towards developing practical skills, sometimes for purposes of evaluation and enquiry. A good example of this strategy may be found in the MA course ‘Educational evaluation’ in which the student learns about evaluation by engaging in a small-scale evaluation activity from the planning stage, through data collection and analysis to reporting the results to professional colleagues.

Use of media

The choice of media varies from course to course. Nearly all courses have print as the main medium, though some maths education courses are video-led. The ownership of video-playback machines is high in the UK (about 70 per cent of homes have them). Audio and video materials are used for a variety of purposes on teacher-education courses: to illustrate aspects of child development or teachers’ work, to provide material for observation and analysis guided by accompanying print notes, and to provide a commentary on interactions as they occur. They add a rich dimension to the printed texts. However, despite the general recognition of the value of video for professional development, several courses and packs are now being produced without a video element because the development cost is too high.
Collaboration and liaison

An important feature of the OU system contributing to its success as a distance-learning institution as a whole is its regional network for supporting students and tutors. This has been particularly important in developing the OU involvement in the professional development of teachers. Through its regionally based academic staff (the 20 or so staff tutors in education), the OU’s School of Education has established active formal and informal links with over 130 LEAs who are responsible for the provision and administration of education in their areas.

Out of this contact and through negotiation at the local level have developed collaborative ways of using the OU courses and packs. Some LEAs recruit and pay for groups of teachers for a particular OU course which fits their own Inset priorities. This group booking enables a sponsored group of teachers to meet together more often at a more convenient location, perhaps a teachers’ centre. They are tutored by an OU-appointed tutor who may also be a member of the LEA in-service staff; often additional activities and support are provided by the LEA. At a national level the OU, through the School of Education, has membership of national planning bodies or consultative committees on teacher training and Inset, and is well represented on the Universities Council for the Education of Teachers. The trend towards national contracts has resulted in keener awareness of governmental and semi-governmental priorities (especially by School of Education central staff). The trend towards school-based funding for in-service training has encouraged greater sensitivity to LEA and school priorities (especially by School of Education regional staff).

EDUCATIONAL ACHIEVEMENT

There are about 500,000 teachers in the UK. It is not possible to say what proportion of these have, at some time or other over the past 20 years, used OU materials or courses, but it must be a significant one. There will not be many schools in the UK who do not have at least one teacher who has taken an OU course or used OU materials. What is clear is that the OU has become the largest Inset provider in the country in terms of student numbers.

OU teaching materials are now widely used by other institutions. Attempts to quantify this secondary use of OU materials have had to recognise the difficulties inherent in such an exercise (Prescott et al., 1987). However, it would be very surprising, given the widespread involvement of teacher-trainers from other institutions as part-time tutors for the OU, if this were not the case. In a study of the influence of the OU on teacher education in Scotland, Marker (1991) suggests that ‘its contribution to the post-experience education of Scottish teachers in the last 20 years has been very considerable’ (p. 29). He concludes that experience of OU courses has encouraged teachers to develop more interactive approaches to teaching and learning, and reports
wide indirect influence of its materials, particularly on course design in the teachers’ own institutions. In terms of materials used throughout the UK, 27,414 course readers for education courses were sold in 1988–89, considerably more than the registered numbers of students (OU, Review of the Open University, 1991, p. 53). There are also large sales of individual course units (3,500 in all subjects) to 70 UK higher-education institutions and a number of adjacent bookshops (ibid.).

An attempt to make an assessment of the effectiveness of the OU’s contribution to teacher education is not an easy task for three reasons. First, the OU was not initially given a clear remit in the field of teacher education, so clearly defined objectives at the outset are not available against which to judge subsequent achievements. Second, the range of activities in this field pursued by the OU is extremely wide. Third, although there is a great deal of information available about the numbers of teachers who have taken and successfully completed OU courses, there is much less evidence available about the extent to which such courses have affected the behaviour of teachers in teaching. Research on this is lacking. Like other distance-teaching institutions, the pressure to forge ahead with new courses has taken priority over evaluation. Course evaluations have been done frequently, but generally only in terms of the course’s effectiveness as a learning experience for students.

In a number of countries it has been persuasively argued that distance teaching has been the only way to meet a large-scale need for in-service training without unacceptable levels of disruption or cost. This viewpoint does not have quite the same impact in the UK, but nevertheless a number of clear advantages of adopting distance-teaching methods in the UK have emerged over the last 20 years.

The OU is clearly in a position to make a significant difference to the level of in-service activity. The University calculated, for example, that its course in reading development was taken by over 12,000 teachers in its first five years, and in each year from its introduction (between 1973 and 1978) it had provided the full-time equivalent of some 600 teacher-study-years, the equivalent of just over 13 per cent of the total annual provision by all other means (Open University Interim Delegacy for Continuing Education, 1978). Similarly, the taught MA in Education with around 2,200 students in 1991 accounted for approximately 40 per cent of all part-time MA in Education registrations at universities in England and Wales.

The quality of OU materials is generally high and tends to be widely recognised as such. This quality is probably due in large part to the level of resource (far exceeding that to be found in other institutions) which goes into the production of the courses, and to the experience the OU has accumulated in designing and producing them. Significant levels of expertise (academic, professional, editorial, design and media) can be brought to bear, together with the involvement of real teachers and real schools in the construction of the materials. Course materials are generally well-researched and up-to-date,
and include examples of recent practice and innovation. The quality of student support is also high, as a result of the strong OU regional infrastructure, the availability of well-qualified and keen part-time tutors, and the management and supervisory role of regional academic staff.

The widespread reduction in financial support for teachers to take full-time courses has led, as we saw, to the almost complete disappearance of the one-year full-time secondment. While some institutions have moved towards part-time provision of courses, they still often contain elements which have to be taken in working hours, so release from school is needed. Moreover the mobility of teachers has meant that many have been reluctant to embark on a sustained programme of study when they felt that a change in location would make it impossible to complete the qualification (a survey in the mid-1970s showed that 16 per cent of OU students moved from one town to another within an 18-month period). In all of these respects the OU’s approach has been noticeably user-friendly. It has provided increased access to Inset courses for teachers who had few or no other options open to them.

**Incorporation into the regular education system**

In a number of ways the OU’s contribution to teacher education has come to be accepted in a formal sense as a recognised part of the national picture. OU degrees and diplomas were immediately recognised for the purpose of awarding salary increments to teachers. OU qualifications like the MA in Education are recognised in national reciprocal credit schemes (for example, the Universities Council for the Education of Teachers and the Council for National Academic Awards) as being on a par with those of other higher-education institutions. However, whereas in some countries the distance-teaching institution prepares students for a national examination or qualification alongside students from other institutions, there are no such national awards for teaching in the UK. Quality and standards have to be inferred from the reactions of other significant groups.

One particularly powerful group has been the LEAs, whose financial support for Inset can make a great deal of difference to an institution’s financial viability. In this respect the OU has enjoyed a very significant degree of support from LEAs throughout the country, varying according to local priorities and budget constraints. In some areas the LEA not only has been willing to pay the course fees of students following OU education programmes, but also has actively encouraged teachers to register for particular courses, offering not only financial but also additional professional support. For example, 43 LEAs in 1987 had group schemes for teachers to take the educational management courses (Glatter et al., 1989). Two advisory staff who acted as tutors in similar groups concluded that the OU programme fulfilled a valuable role in their Inset provision and created a stimulus for group review of common problems. They reported that the programme
provided ‘a blend of theory and practice with a potential for implementation which more traditional courses have frequently failed to achieve’ (Maud and Baxter, 1986).

The features which characterise the OU have also meant that it has been seen as capable of playing a distinctive national role within the teacher-education sector. The government and various government-supported national organisations have turned to the OU in support of national priorities, for example in the production of teachers’ guides for the new secondary examinations. Although there always appears to be some area of possible development under discussion with the government (currently it is OU involvement in initial teacher training), it is probably fair to say that they have been somewhat reluctant to fund the OU to anything like the extent necessary to fulfil its potential in the field of teacher education. On the other hand the use of the OU as an arm of national policy is not without its tensions and dilemmas. This is especially true in those instances where the OU has acted more like a publishing agency than a university, allowing the external sponsor to exercise considerable influence over the content of the training materials. The credibility of OU materials with teachers lies partly in the fact that they are perceived to be from an independent source. OU staff have also come to recognise some of the drawbacks of giving priority to external contracts particularly where the University will be involved only in the production and distribution of the training material, and not in the way in which the material may subsequently be used by teachers. Nevertheless it is difficult to imagine the OU’s School of Education declining to undertake such contracts at a time when the government is set on reducing the level of subsidy to higher education.

As so many teachers have studied with the OU during its 20 years of operation, it is surprising how little research exists about its impact on teacher effectiveness. Apart from informal feedback from regional tutors and students, what information there is tends to be of the self-report kind in which teachers respond to questionnaires sent out by the OU. The value of such information should clearly not be underestimated, but it is not supported by any observational studies of classroom or institutional performance, or studies of pupils’ learning outcomes.

The kind of response which some OU professional courses have received is illustrated from the evaluation of the Advanced Diploma in Educational Management (Glatter et al., 1989). This course set out to enable managers or potential managers in schools and colleges to develop their professional effectiveness, and 96 per cent of 247 respondents considered that their work on the course had contributed to changes in their management approach and/or practice. In particular, participants valued the direct usefulness of their project work. As one respondent put it, ‘I’m sure this is the way forward for school management courses because of its potential for being school-focused and action-oriented.’
Others were in no doubt that the course had also contributed to their career development:

I have been promoted twice over the past three years since I started [the Advanced Diploma] and I believe that the application of course materials to the professional context has enabled me to learn from practice in a much quicker and more structured way than might otherwise have been the case.

A similarly positive picture emerges from the evaluations of other professional courses produced by the School of Education. For example, 93 per cent of the 185 students who responded to a questionnaire about the Master’s level course, ‘Gender and education’, considered the course had been helpful to them in their professional work. However, it is important to acknowledge that not all teachers have responded positively on the question of professional relevance. Harris (1987) carried out research on the earliest of the OU courses in the sociology of education, and reported that among the teachers whom he studied were some who approached their studies with a marked instrumental orientation along with a pronounced scepticism about the relevance of educational theory to their professional practice.

Subsequent OU courses which have set out to affect professional practice have tended to build in a significant element of practical activity. An attempt to do this is illustrated by the course on reading development (1973–76) which aimed to provide students with a variety of activities integrating theory with practice. Several evaluations were done of this course, to obtain information about its effectiveness as a learning experience for the students, and to discover the impact of the course on the students’ teaching in schools. Through questionnaires, visits to schools and interviews with selected teachers it was concluded that the change in practice did not match the enthusiasm reported in the questionnaires: ‘attitude toward reading and its resources was changed, but not practice’ (Lawn, 1974, p. 135, quoted in Henderson, 1978). It was noted that the course

had been of great interest to the many readers who had studied it, but that the enthusiasms it had generated had failed to lead a substantial proportion of these teachers to utilise the techniques and ideas discussed in more than a fragmentary way in their classroom.

(Henderson, 1978, p. 136)

However, similar conclusions were also drawn about conventional Inset courses around this period; the recognition that ‘whole school’ approaches were important for effecting change came later.

One interesting study by Easen and Paine (1984) attempted to evaluate the impact of a set of Inset materials ‘Curriculum in action: practical classroom evaluation’, produced by the OU with support from the former national body
for the development of the curriculum, the Schools Council. These materials were not part of an assessed course but consisted of a pack of resource materials which teachers could buy and use as they wished. Easen and Paine based their study on the sale of 1,230 packs of which the majority were purchased in multiple copies by institutions. They noted the difficulties of collecting evidence relating to the change in teachers, and based their conclusions mainly on self-reporting corroborated wherever possible by teachers’ colleagues and head teachers. From the point of view of this case study, a number of interesting findings emerged. The majority of those interviewed said they had perceived some changes in their classroom behaviour. However, pack users did not necessarily have the structure or the support which is provided by an OU course; without these an enormous amount of motivation and self-discipline appeared to be needed to complete the pack activities. The provision of the materials themselves was insufficient to ensure the success of the Inset work.

The fact then that large numbers of teachers may buy OU materials is not in itself proof that the OU is having a major impact on teacher effectiveness. Factors contributing to effectiveness in use appear to be the degree of local support and the nature of guidance given to pack users. Group leaders in particular (Inset co-ordinators within a school, advisory and senior teachers, those in a staff development role) need to have demonstrated to them and to experience different ways of making use of the materials in order to see their relevance and application to their own school context (Robinson, 1990). A similar conclusion is drawn by Thomas et al. (1991) in relation to the ‘Physics for science teachers’ pack, where the work of two national academic liaison officers, specialists in physics and physics teaching, was found to be crucial in developing effective ways of using the packs with individual LEAs, over 70 of whom developed active Inset groups.

Support given by LEAs to teachers taking OU courses therefore has a dual significance: it indicates that the main employers of teachers have confidence in OU materials and methods, and it may also provide a local network of support to encourage persistence and further development.

Problems

Some of the difficulties encountered in providing in-service education at a distance continue to present a challenge to the OU.

The development of the OU has been based to a large extent on a particular notion of cost-effectiveness. This has favoured the view that a heavy initial expenditure on a suitable infrastructure and high-quality teaching materials is more than justified by the large numbers who are able to benefit, and by the consequently relatively low cost per student. However, there are clearly drawbacks in investing so heavily in the initial production of teaching materials.
One is the updating of materials to take into account changes in the educational scene, which in some areas have been occurring with bewildering frequency. Though of good quality, the materials may quickly become out of date. This problem is compounded by the fact that there are significant differences between the educational systems of Scotland, Northern Ireland and England/Wales. Despite attempts to provide a Scottish or Northern Ireland dimension to the materials, it is difficult to avoid the conclusion that these are often an afterthought rather than a central feature. Even without this complication, updating would remain a problem which appears to require a further shift of resources from initial production to the presentation phase, and an experimentation with different models of course construction. However, as one part of a large institution, the School of Education cannot develop its own idiosyncratic systems though it has introduced non-standard courses as a way of more fully engaging with teachers’ needs.

As the OU has grown larger and more complex so the faculties have been pressed into determining their programmes further and further in advance. Most courses must be included in plans five years in advance of their presentation to students, and work on producing the courses may begin as much as three years in advance. If such a course is to be offered for eight years, it is easy to see why updating and revision is a major problem. However, the OU has recognised that external agencies are not prepared to wait that long, and has been willing to support much more rapid responses if the funding is sufficient to support the additional costs involved.

The OU so far has not had a formal role in overseeing classroom performance. It is not altogether clear whether historically this was due to a recognition that the University would find such a role difficult to carry out, or an implicit understanding that it would not encroach on the territory of other educational providers in the field of initial training. Whatever the reason, it has meant that, until now, the OU has stopped short of formally assessing students on their performance in the classroom. There is also, of course, a cost factor involved. The courses themselves have not ignored the importance of addressing the problems of changing attitudes and changing practice, and have attempted to accommodate this in their design. Assessment has concentrated on written accounts of activity within a school, classroom or institution, including curriculum planning, proposals for testing, small-scale evaluations, and reflective reviews of practice and innovations. However with the introduction in 1994 of the new initial teacher training programme (Postgraduate Certificate in Education), the OU will assess classroom performance, in partnership with schools.

Despite the strengths of distance education, it is not universally regarded as the solution to the problems of supporting Inset. A recent report on behalf of the DES (Brown and Early, 1990) devotes a relatively modest amount of consideration to distance education. The report recognises that distance-learning materials were regarded as an effective way of updating the skills of teachers without taking them out of school, and of transmitting information rapidly to large numbers of teachers. However it noted that:
Continuing education

Distance learning, it was reported, could be very lonely. Even though it reached a large number of teachers very economically, it was not considered to be valuable ‘without support, contact and confidence’.

(Brown and Early, 1990, p. 29)

While agreeing with this conclusion in general, we would suggest that the OU in particular has built in these elements through tutor support and other means of interacting with students, and through the development of LEA collaboration. However, the potential for distance education as one of several components in the provision of Inset is considerable and perhaps undervalued.

Completion and success rates

There is a great deal of data in the OU on course registration, completion and success rates. However, in the context of this case study there are some difficulties in the selection and interpretation of the data. Teacher education encompasses courses, programmes and packs (for which no assessment is made). It may also include teachers studying for a degree through other faculties, taking subjects which have varying relevance to occupational needs.

Another difficulty in determining success arises from the specific educational qualifications offered by the OU, for example the Diploma programme. In the area of reading development, over 12,000 students registered for the introductory course during the period 1973–78. Although this programme was subsequently expanded into a Diploma in Reading Development with the addition of three more courses, many students clearly felt that they had achieved their aims after successful study of the introductory course. By 1988, when the Diploma was withdrawn, only 1,133 students had completed the full qualification despite the high numbers on the initial course. The same is true of other successful diplomas in educational management and special needs. What this means is that although the programme designers conceive the programme as an integral diploma, many teachers or clients decide that their needs are well met by only part of it, even though they have rated their course highly.

This is inevitable when a range of students with different objectives and motivations are studying the same course, as in the case of associate students taking education courses in the undergraduate programme. Associate students, who pay higher fees and who are more likely to be supported by their employers, may themselves be studying the courses because they form part of a professional diploma or simply on a one-off basis. In the latter case, it is common for them to be less concerned with taking the final examination and seeking a course credit. The OU recognises this rather different orientation by awarding a letter of successful course completion to those who successfully complete the course work but choose not to sit the examination. The overall
effect of this heterogeneity is to increase the complexity of interpreting the data on course completion. However, the figures in Table 10.2 give a reasonably typical picture of completion and success rates on undergraduate courses.

Despite the fact that a significant number of associate students are not studying education courses to gain a particular award, their completion and success rates are very similar to the undergraduate pattern given in Table 10.2. In 1989, 4,851 students registered for associate courses, of whom 68 per cent sat the examination and 67 per cent passed. A further six per cent successfully completed the course work, but declined to take the examination and were awarded ‘Letters of successful course completion’ (Open University Statistical Bulletin 1989, pp. 28–30).

The success rate of undergraduate students taking education courses is broadly similar to that of OU undergraduates as a whole—69.4 per cent compared with 70.8 per cent (ibid., p. 11). However, the success rate of associate students taking education courses is significantly better than for other academic areas, 66.2 per cent compared with 54.3 per cent (ibid., pp. 30 and 37).

The MA in Education reveals an even higher completion and success rate as shown in Table 10.3.

The general picture shows that as the number of students studying undergraduate education courses declines and the number taking associate and postgraduate courses increases, the success rate is being maintained. The figures for the MA in Education show that it is in fact being increased.

Table 10.2 Undergraduate course results, 1989 (education course only)

<table>
<thead>
<tr>
<th>Course</th>
<th>No. of registered students</th>
<th>% examined</th>
<th>% passed as % of registered students</th>
</tr>
</thead>
<tbody>
<tr>
<td>E206</td>
<td>1,177</td>
<td>70</td>
<td>64</td>
</tr>
<tr>
<td>E208</td>
<td>393</td>
<td>83</td>
<td>79</td>
</tr>
<tr>
<td>E241</td>
<td>537</td>
<td>75</td>
<td>73</td>
</tr>
<tr>
<td>EH207</td>
<td>335</td>
<td>80</td>
<td>76</td>
</tr>
<tr>
<td>EH221</td>
<td>150</td>
<td>64</td>
<td>63</td>
</tr>
<tr>
<td>EM235</td>
<td>134</td>
<td>74</td>
<td>73</td>
</tr>
<tr>
<td>E324</td>
<td>91</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>E325</td>
<td>195</td>
<td>71</td>
<td>69</td>
</tr>
<tr>
<td>E333</td>
<td>106</td>
<td>73</td>
<td>71</td>
</tr>
<tr>
<td>E355</td>
<td>138</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>E362</td>
<td>262</td>
<td>77</td>
<td>71</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,518</td>
<td>74</td>
<td>69</td>
</tr>
</tbody>
</table>

Source: School of Education, unpublished internal report.

Note: These statistics omit 26 students retaking courses.
Continuing education

COSTS

The OU is an institution with high fixed costs and relatively low marginal costs. Distance-learning materials of high quality are expensive to produce but, depending on the choice of media, relatively cheap to distribute and present to students. Because the OU has made substantial investment in staff and other resources in order to develop the courses, it is difficult for it to make large-scale changes in the level of resources in response to short-term fluctuations in demand. Many of its costs are not sensitive to reductions or increases in student numbers.

The University’s accounting systems ‘are not designed to divide costs between fixed, semi-fixed and variable’ (OU, Review of the Open University, 1991, p. 59). The information which follows (prepared for the review) should, as the document itself says, be treated with caution since it involves ‘some informed but subjective judgments’ (ibid.). However, it does represent the best available information at the time of writing.

Table 10.4 shows the OU’s recurrent expenditure on the undergraduate programme in 1989. It suggests that one-third of the costs for course development and production were fixed (not related to student numbers) while the rest were ‘not wholly variable’ with student numbers. The information given is for all OU undergraduate courses, not education in particular.

Course costs

The OU’s budget for the 1991 academic year is £139 million. There are three main sources of income: block grant from the DES, which accounts for 78 per
cent of the University’s expenditure on the undergraduate programme; fees paid by students; and revenue from sales of materials and other activities (research grants, the sales of study materials, and contract and consultancy work). The funding of the production of education courses reflects these three sources of income, but it has not proved possible to identify the proportion of the total income that is used to support education courses.

The costs of courses to students are shown in Table 10.5. On payment of the course fee, students are provided with all the materials they need to study the course, with the exception of the set book which (where required) is an additional cost to the student (maximum costs for set books in 1991 are £60 for a full-credit course). A course package includes course units, plus

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**Table 10.4 Summary cost structure of the OU**

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>1989 000s</th>
<th>Approximate % change in cost for x % change in student numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-10</td>
</tr>
<tr>
<td>Fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Development of courses</td>
<td>15,012</td>
<td>0</td>
</tr>
<tr>
<td>- Production of courses</td>
<td>14,207</td>
<td>0</td>
</tr>
<tr>
<td>Semi-fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Central costs</td>
<td>22,009</td>
<td>0</td>
</tr>
<tr>
<td>- Presentation and distribution</td>
<td>21,410</td>
<td>-6</td>
</tr>
<tr>
<td>- Student support</td>
<td>16,643</td>
<td>-6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>89,281</td>
<td>-3</td>
</tr>
</tbody>
</table>

*Source: OU, Review of the Open University, 1991, Table 28, p. 59*

**Table 10.5 Education course costs, 1991 (Currency: pounds sterling)**

<table>
<thead>
<tr>
<th>Student fees</th>
<th>Credit</th>
<th>Cost</th>
<th>No. of credits needed for qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate course</td>
<td>full</td>
<td>218</td>
<td>6 for degree</td>
</tr>
<tr>
<td></td>
<td>half</td>
<td>145</td>
<td>8 for Honours</td>
</tr>
<tr>
<td>Associate student course</td>
<td>full</td>
<td>375</td>
<td>1-year course</td>
</tr>
<tr>
<td>MA course (cost per module)</td>
<td>full</td>
<td>320</td>
<td>3 modules</td>
</tr>
<tr>
<td>Certificate course</td>
<td>one-eighth</td>
<td>110</td>
<td>one-half credit’s worth (220 hours)</td>
</tr>
<tr>
<td></td>
<td>one-quarter</td>
<td>160</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Compiled from Open University brochures and prospectuses.*

*Note: The University’s continuing education programme is described as self-financing, which accounts for the difference in fees charged to undergraduate and associate students for the same course.*
Continuing education

Audiotapes and videotapes where they form part of a course, home experiment kits where appropriate, and tuition and assessment. A computer leasing scheme is available at £198 for students without access to a personal computer. Summer-school fees are extra. Access to specially prepared radio and television programmes is provided on the public broadcasting networks.

Unit costs of courses

The costs given in Table 10.6 are indicative costs. They are affected by a number of factors, such as the course design, the teaching strategy, and the resulting choice of media components for a particular course. They are also affected by subject area (science courses are more expensive than arts) and student numbers per course (the most significant influence).

OU courses consist of a number of integrated components, each of which carries its own costs. Television is more expensive to use than print or video, radio is more expensive than audiocassette. The development and production costs of courses vary across a very wide spectrum: for example, the production cost of a science foundation course is of a very different order (very high) compared to a Master’s course in education (low). There may also be an inverse relationship between the costs of producing and presenting a course: a course may be low-cost to produce if it requires a small amount of learning

Table 10.6 Cost per undergraduate student course by faculty (Currency: pounds sterling)

<table>
<thead>
<tr>
<th>1989 cost per student course</th>
<th>Total</th>
<th>A</th>
<th>D</th>
<th>E</th>
<th>M</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td>162</td>
<td>84</td>
<td>122</td>
<td>206</td>
<td>100</td>
<td>289</td>
<td>234</td>
</tr>
<tr>
<td>Production costs planned by faculties</td>
<td>11</td>
<td>6</td>
<td>8</td>
<td>15</td>
<td>8</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Presentation costs planned by faculties</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Summer schoola</td>
<td>50</td>
<td>34</td>
<td>37</td>
<td>10</td>
<td>29</td>
<td>122</td>
<td>65</td>
</tr>
<tr>
<td>Other</td>
<td>137</td>
<td>132</td>
<td>135</td>
<td>122</td>
<td>136</td>
<td>163</td>
<td>133</td>
</tr>
<tr>
<td>Sub-total</td>
<td>360</td>
<td>256</td>
<td>302</td>
<td>353</td>
<td>273</td>
<td>593</td>
<td>449</td>
</tr>
<tr>
<td>Apportioned costs</td>
<td>599</td>
<td>541</td>
<td>523</td>
<td>577</td>
<td>557</td>
<td>785</td>
<td>650</td>
</tr>
<tr>
<td>Total</td>
<td>959</td>
<td>797</td>
<td>825</td>
<td>930</td>
<td>830</td>
<td>1,378</td>
<td>1,099</td>
</tr>
<tr>
<td>Per FCE coursed</td>
<td>1,217</td>
<td>959</td>
<td>899</td>
<td>1,326</td>
<td>1,056</td>
<td>1,883</td>
<td>1,606</td>
</tr>
</tbody>
</table>

Source: OU, Review of the Open University, 1991, Table 29, p. 60.

Notes
a. A = arts; D = social science; E = education; M = mathematics; S = science; T = technology.
b. Summer school costs are met by specific student fee income. The figures above exclude the residential element.
c. FCE = Full Credit Equivalent.
materials, but higher-cost to present because it needs a high level of student support and tutoring.

Thus the average cost of an arts undergraduate student full-credit course in 1989 was £959, and for an undergraduate education course £930. Using the 1989 exchange rate of £0.61 = US $1.00 and converting to constant 1988 US dollars this is equivalent to $1,523 and $1,478 respectively. The cost of courses for students who are teachers therefore varies according to the faculty providing the courses.

Packs of learning materials and short courses are difficult to cost, even if the data were available, because they can involve dual use of materials. The same is true for diploma students on undergraduate courses, where the fee is geared to the marginal additional cost of students, not the full cost.

### Cost per graduate


The cost per graduate should not be regarded as the only appropriate measure of cost-effectiveness for teacher-education courses. As can be seen from the number of associate students taking education courses, many teachers only wish to register for an individual course since that meets their particular needs.
Cost of alternatives

Comparative figures with conventional universities are not given in the review, but Horlock (1984, p. 17) gives the cost of a conventional university arts graduate as £11,542 compared to £7,157 for an OU equivalent (in 1981–82 figures).

However, since the majority of education students are not following BA degrees but a range of other courses (from one-eighth credits to Master’s degrees), there are a number of comparative costings which need to be made, when data become available.

The attempt to make comparisons is also complicated by the number of different ways of providing Inset, not all by higher-education institutions. Comparisons with other LEA Inset courses are not available; however, the kind of comparison possible is offered by the following illustration. One LEA made a group booking for 115 teachers (as associate students) on a one-year course for teachers of children with special needs; the cost of doing this will be less than one-third for the teacher-substitution costs alone of their previous Inset course for slightly fewer teachers (supply or substitute teacher costs are based on £85 a day). The alternative was a five-week course, removing teachers from schools.

The OU alternative also carries accreditation towards a further qualification. In this particular circumstance the OU provides a cheaper (but high-quality) alternative. The real cost advantage to employers is the opportunity cost of the distance-education alternative: no teaching time is lost; there is no physical displacement of people, with associated travel or residential costs; teacher-substitution costs are not required; the self-study approach allows greater flexibility with regard to other work commitments; and courses can be provided locally on subjects where there is scarce local expertise. The distance-taught component will in this case be combined with other conventional Inset provision as part of a strong LEA strategy for developing specialist teachers.

Costs to students

Students pay tuition and residential school fees, and for set books (maximum of £60 for a full-credit course). They also pay costs of travel to tutorials or residential schools and the cost of contact with tutors in between tutorials (telephone calls or letters), unless telephone tutorials are scheduled as part of the tutorial programme or are given in special circumstances, in which case the OU pays. Where computers are used on courses, students are expected to supply their own or to rent one from the University and to pay the costs of use. The level of costs individual students will incur depends on a number of factors: the specific course, whether it has a residential school, the distance to travel to it, and frequency and distance of travel to tutorials. The average cost
per student in 1989, including fees, is calculated at £158 (1988 $251), though this will vary widely between courses (OU, *Review of the Open University*, 1991, p. 70). For teachers taking OU courses, study time is unlikely to occupy time normally spent on other paid work (it may be the case for a very small number), so foregone additional earnings are not usually involved, though there may be social and personal costs.

**CONCLUSIONS**

The OU provides a range of teacher-education courses as one of its many functions as a distance-teaching institution. It has demonstrated that it is able to produce high-quality learning materials and to deliver them effectively. The examination results confirm that the system works well and that dropout is relatively low. The OU has widespread regional services for supporting student learning and regionally based academic staff who interact with other education agencies at a local level. All of these have been important for the development of teacher-education courses at a distance and their incorporation into Inset provision nationally. Through the OU, the level of Inset nationally has been increased and access to it has been extended.

The teacher-education courses have generally been received positively according to the users’ self-report data available, and on the whole are regarded as relevant and useful for teaching and educational management. The wide use of materials, often reported informally and supported by sales figures, suggests a regard for its quality and relevance by teachers and teacher educators (many of whom themselves contribute to the materials or act as tutors). This is confirmed by the take-up of course places and materials by LEAs on behalf of their teachers. The range of provision and increasing diversity now offered by the OU shows an awareness of and response to changing needs in schools and educational services as well as the ability of such a large organisation to accommodate such changes to some extent.

The OU’s involvement in Inset has been broadly based and has become a visible and accepted part of Inset provision. Some of its courses have recruited thousands of students over the course’s lifetime, and have demonstrated the economies of scale important for distance-teaching institutions. Others, against expectations, have recruited small numbers and raised debate within the School of Education about what is appropriate for a distance-teaching institution to engage in. It is clear that some activities are barely cost-effective for a distance-teaching institution, though it can be argued at what point they become inappropriate.

While a centralised institution can provide a national resource with regard to courses and materials, it is difficult for it to cope with differences in educational systems and practice within the UK. This is compounded by the present rate of change in education, leaving materials outdated unless frequently revised (with all the cost implications of that). The pattern of
Continuing education provision has changed considerably over the last decade, and even more rapidly over the last five years. Diversification has resulted in a rich array of choices to meet a variety of needs, but has brought its own problems for a distance-teaching institution: smaller student numbers on a larger number of courses; more dispersed student groups resulting in fewer local tutors and fewer opportunities for face-to-face meetings with other students; a larger profile of courses to service, support, manage and promote; and an increasingly complex pattern of offerings which requires more explanation and advisory discussion for potential students and LEA sponsors to assist them in their choices.

Because the OU has demonstrated its success in using distance-education, and has trained thousands of staff from other institutions to be effective distance-education tutors, and because of the changes in funding for in-service work, it is not surprising that there is increasing competition from other providers who are adopting low-cost versions of OU practice or who can respond more easily to short-term needs. As competition has increased from other providers, marketing has become a more prominent activity.

REFERENCES


Open University Open Opportunities Brochure, 1990.
Open University Taught Master's Degree Prospectus, 1990.
INTRODUCTION: KENYA AND ASPECTS OF ITS EDUCATION SYSTEM

Kenya, an independent nation since 1963, lies on the east coast of Africa, with the equator nearly dividing it in half. Its population, characterised by an annual growth rate of more than 3.5 per cent, was estimated to be about 25 million in 1990. Thus, with an area of 583,000 km², its population density was about 43 people per square kilometre. The population is concentrated on the southwestern highlands and plateaux, which have fertile soils, adequate rainfall and a mild temperature. Nairobi (500 km from the coast), the capital city, lies on the eastern fringe of this fertile region. Although tourism and manufacturing industries are important in the economy, agriculture plays the dominant role with maize, pulses, coffee, tea, pyr-ethrum, livestock and horticulture being particularly significant.

Kenya’s education system has been greatly influenced by the former imperial link with Britain. For instance, English is the medium of instruction from the fourth year of primary school onwards. Echoing the imperial legacy to an extent, prior to 1984 general education was organised into four sectors: primary school—seven years; lower secondary—four years; upper secondary—two years; and university—at least three years. In 1984 the primary course was extended to eight years, a single four-year secondary course was created, and the minimum duration of university education was raised to four years.

Learner progression through the education system is based on selection in accordance with performance in centrally conducted examinations. Because places in the higher sectors are limited, progressively smaller proportions of students reach the upper echelons of the educational pyramid. Currently, over 90 per cent of the eligible age group is admitted into primary school. Of those who complete primary school, about 40 per cent are admitted into secondary school. Only about seven per cent of secondary-school leavers get places in the country’s state universities.
The University of Nairobi (UON) is the oldest of the four state universities in Kenya. A growing feature of the country’s education is the development of private universities (currently five are functional), which alleviate pressure for admission into the state universities.

Outside general education, a variety of public and private institutions undertake training in specific skills, including technical, teaching, paramedical, agricultural and business skills.

Originating from the colonial period when educational opportunities for indigenous Kenyans were limited, and fuelled by the urgent need for high-level manpower in the first decade of independence, Kenya is characterised by great demand for education. The acquisition of education which qualifies a person for entry into the modern sector of the economy is seen as the gateway to success. Since the late 1960s, as more and more people have acquired formal education, unemployment of school-leavers has grown to become a major worry. One solution, as perceived by families and individuals, has been to seek higher qualifications through external studies and entry into overseas universities.

Both the government and communities have made great strides in expanding opportunities for education. For instance, the enrolment in state universities has grown by over 2,500 per cent since 1963. Quantitative growth has been associated with certain untoward effects, including a drop in quality and a heavy financial burden on the state and households. In the financial year 1989–90 the government spent about 40 per cent of the recurrent civil budget on education. Households are required to meet a large proportion of the expenses of primary and secondary education. Students admitted to residential courses in the state universities are eligible for a government-sponsored loan scheme. Repayment is expected after graduation.

**HISTORICAL PERSPECTIVE OF THE DISTANCE-EDUCATION PROGRAMME**

The Bachelor of Education Distance Education Programme (BEDEP) together with the residential Bachelor of Education (BEd) are the two degree courses currently offered by the College of Education and External Studies (CEES) of UON. CEES, housed at the Kikuyu campus (about 20 km west of the main UON campus), has three faculties—Education, Social Sciences and External Studies. The Faculty of External Studies (FES) has three departments: distance studies (in charge of in-service training of adult education and primary-school teachers), education (in charge of the BEDEP), and extra-mural studies. Currently tutors resident in six regional centres and who are members of the extra-mural department are deployed to work with the sister department of education to service the BEDEP. The residential BEd (first cohort admitted in academic year 1988–89) is the responsibility of the Faculty of Education.
The desirability of establishing an external degree programme (EDP) through distance education has variously been deliberated and reported on since 1964. In response to a decision by the government of Kenya, in 1983 the deans’ committee of UON set up a task force which recommended that an EDP should be developed. In its report the task force provided details on the structure, courses to be offered, modes of instruction, and the unit to manage the programme. The university senate accepted these recommendations and in September 1985 the predecessor of FES was established. Three different courses were recommended for introduction in stages as follows: BEDEP (Arts in 1987 and Science in 1990), Bachelor of Business Studies (in 1992), and Bachelor of Legal Studies (in 1994).

After every two years a new cohort of students was to be admitted into each of the courses so that by the year 2000 the FES enrolment would be about 5,000 students. The government of Kenya was so enthusiastic about these proposals that it provided funds for the first intake of BEDEP (Arts) to take place in September 1986. The advancement of the intake date put pressure on the development of correspondence materials. This situation, together with other teething problems (such as satisfying the deans’ committee and the senate that actual experience with the first cohort justified further development), has delayed the intake of the second BEDEP (Arts) cohort. With hindsight, it has been decided to concentrate on developing most of the correspondence materials for the BEDEP (Science) before the first cohort is admitted.

OBJECTIVES OF THE PROGRAMME

The development of the external degree programme could be characterised as an attempt to resolve conflict between (a) aspirations for more education by an ever-increasing number of Kenyans and the need to broaden the base of high-level manpower for national development, and (b) resource constraints (both financial and human) on quantitative growth of enrolments in conventional higher-education institutions. As an illustration of constraints on individual aspirations for higher education, it should be noted that by 1984 the backlog in the development of the necessary university infrastructure was such that less than 37 per cent of qualified ‘A’ level school-leavers were able to obtain places. This situation existed side by side with glaring shortfalls in high-level manpower, as illustrated in the secondary-school teaching force. In 1985 there were 19,368 secondary-school teachers, of whom 5,706 (30 per cent) had been professionally trained after completing secondary school and 8,648 (45 per cent) were untrained (mostly ‘A’ level school-leavers). These teachers without university degrees were intended to teach the first two classes of secondary school, but due to the shortage of graduate teachers, they were called upon to teach the upper classes for which they had not been adequately prepared. As opposed to teacher education in a conventional university, the
BEDEP (which has both academic and professional components) was resorted to as a relatively cheap but effective way of raising the number of graduate teachers in secondary schools. This assertion, regarded in this report as a key object of evaluation of the BEDEP, is clearly articulated in the objectives of the EDP, which the FES prospectus states as to provide:

- learning opportunities for qualified Kenyans who cannot secure places in the existing internal faculties of the national universities
- an alternative and innovative method of learning which is not limited to a particular time and space
- an opportunity for people to learn at their own pace
- high-level manpower
- an opportunity to maximise the use of limited educational resources, both human and material, by making university education available beyond (the conventional) lecture halls
- an opportunity for working Kenyans to obtain education while continuing with the task of nation building and carrying out their family responsibilities.

EVALUATION PARAMETERS

The analysis of the cost of the BEDEP is the central theme of this chapter. It is considered that the discussion of cost data should be accompanied by any available evidence that the programme is achieving acceptable educational quality. Three sets of parameters are used to evaluate the quality of education provided through the BEDEP. First, the student intake is analysed to shed light on (a) equity (in relation to gender and regional representation) as a subset of quality, and (b) the entry characteristics (age and occupational status) of the students. In relation to the students’ entry characteristics, the UK Open University report on EDP in Kenya (Open University, 1976, p. 8) states as follows:

The best part-time students are those who are married, living in their own home and settled in a job...[they] have more experience of life and are better able to relate this to their studies...their greater maturity is more likely to sustain them through the trials of regular part-time study.

Second, the students’ progression rate is discussed to indicate the extent to which the programme is succeeding in training teachers. Third, the BEDEP curriculum and examinations are compared to those of the residential BEd course. Fourth, the degree of success of the BEDEP is discussed in relation to the delivery system (including correspondence materials, textbooks, face-to-face tutorials and professional support for the distance student).
Continuing education

Table 11.1 Provincial distribution of the BEDEP enrolment

<table>
<thead>
<tr>
<th>Province</th>
<th>Enrolment No.</th>
<th>%</th>
<th>Provincial proportion of Kenya’s population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rift Valley</td>
<td>121</td>
<td>20.4</td>
<td>21.1</td>
</tr>
<tr>
<td>Central</td>
<td>118</td>
<td>19.9</td>
<td>15.3</td>
</tr>
<tr>
<td>Nairobi</td>
<td>116</td>
<td>19.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Eastern</td>
<td>85</td>
<td>14.3</td>
<td>17.8</td>
</tr>
<tr>
<td>Nyanza</td>
<td>72</td>
<td>12.1</td>
<td>17.3</td>
</tr>
<tr>
<td>Western</td>
<td>57</td>
<td>9.6</td>
<td>12.0</td>
</tr>
<tr>
<td>Coast</td>
<td>23</td>
<td>3.9</td>
<td>8.8</td>
</tr>
<tr>
<td>North Eastern</td>
<td>2</td>
<td>0.3</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>594</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note:
a. According to the 1979 census.

Table 11.2 Ages of students in the first BEDEP intake

<table>
<thead>
<tr>
<th>Age in years</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–25</td>
<td>48</td>
<td>8.1</td>
</tr>
<tr>
<td>26–30</td>
<td>194</td>
<td>32.7</td>
</tr>
<tr>
<td>31–35</td>
<td>219</td>
<td>36.9</td>
</tr>
<tr>
<td>36–40</td>
<td>103</td>
<td>17.3</td>
</tr>
<tr>
<td>41–45</td>
<td>15</td>
<td>2.5</td>
</tr>
<tr>
<td>46–50</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>No data</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>594</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

THE STUDENT INTAKE

Out of 3,058 applicants for the BEDEP (Arts), 594 (466 males—78 per cent, and 128 females—22 per cent) were admitted in September 1986. Thus, as in most residential courses in Kenya’s state universities, females are underrepresented.

Table 11.1 shows the provincial distribution of the enrolment. Except for Nairobi, which is grossly over-represented, the provincial distribution of the BEDEP students roughly corresponds to the provincial proportions of the country’s total population. Kenya’s 41 administrative districts are grouped under the eight provinces (Nairobi has the status of a province). Only six districts (Marsabit, Isiolo, Wajir, Lamu, Keiyo-Marakwet and Turkana) were not represented in the intake.
The age range of the cohort is indicated in Table 11.2, which shows that about 91 per cent of the students were in the age range 26 to 50. Thus, it could generally be assumed that the cohort was sufficiently mature to undertake university study through distance methods.

According to the Students’ handbook (published in September 1986), the BEDEP entry requirements were slanted in favour of applicants who were teachers. In order to be admitted an applicant was expected to have obtained five ‘O’ level passes and two ‘A’ level principal passes or a teaching qualification (diploma or an SI (secondary school teacher one) certificate) from an approved teacher-training institution. The handbook states that ‘preference is given to candidates who are employed as teachers or teacher trainers’ (p. 4). Table 11.3 shows the occupational distribution of the 486 students who indicated the nature of their employment at the time of admission.

Out of the teachers in the sample 342 (72.5 per cent) were professionally trained while 130 (27.5 per cent) were untrained. The data in Table 11.3 provide evidence that the BEDEP is geared to upgrading the qualifications of teachers already in service.

### STUDENTS’ PROGRESSION RATE

Out of the 594 who were admitted, 515 (87 per cent) took up their places. In June 1987, 370 (72 per cent) presented themselves for the end-of-year examination. In April 1990, 241 (47 per cent) took an examination signalling that they had covered the equivalent of one year of the residential course. The results of the examination were made public at the end of August 1990. Of the 241 candidates, 158 (66 per cent) passed in all papers and were thus allowed to proceed to the second part of their study, 61 (25 per cent) were required to take supplementary papers (not later than in October 1990), ten (four per cent) were referred for a year, and 12 (five per cent) had their results deferred because they had not submitted all required course work.

The status of the rest of the original intake may be characterised as follows: about 170 (33 per cent) were thought still to be interested in the course and continuing to work on their Part 1 examinations, while the remaining 104 (20 per cent) were not thought to be active students and thus were subject to

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**Table 11.3 Occupational distribution of a sample of BEDEP students**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>472</td>
<td>97.1</td>
</tr>
<tr>
<td>Other employment</td>
<td>14</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>486</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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Continuing education

discontinuation. The progression rate indicated by the foregoing data is satisfactory if the BEDEP is compared to similar programmes in other universities offering distance education. For example, Keegan (1986) presents data to the effect that at the University of New England at Armidale, New South Wales, Australia, about 35 per cent of a new intake of distance students drop out within the year while ten to 12 per cent of continuing students withdraw or suspend studies each succeeding year. With reference to the UK Open University, Keegan maintains that the 50 per cent of each year’s cohort who graduate is highly acceptable (Keegan, 1986).

In spite of satisfactory continuation rates, the reasons for 20 per cent of the original intake dropping out should be of interest. Interviews with FES staff elicited a number of causes for dropping out of the BEDEP, including UON’s refusal to give exemption for knowledge acquired in previous professional training; admission to residential university courses; promotion on merit to graduate status; financial constraints; and conditions not conducive to private study associated with family problems, long distances coupled with unreliable means of transport, and unfavourable demands at the place of work.

### CURRICULUM

A BEDEP (Arts) student must offer education (foundations, psychology, planning, administration, curriculum development, communication and technology, and practical teaching) and a combination of two academic subjects selected from humanities, languages and mathematics. The 515 students enrolled in 1986 were registered for academic subject combinations as shown in Table 11.4.

The BEDEP curriculum is similar to that for the residential BEd: in each subject most study units for the two courses have the same titles. Teaching

<table>
<thead>
<tr>
<th>Students</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double mathematics</td>
<td>128</td>
<td>24.9</td>
</tr>
<tr>
<td>Business studies and economics</td>
<td>82</td>
<td>15.9</td>
</tr>
<tr>
<td>History and religious studies</td>
<td>76</td>
<td>14.8</td>
</tr>
<tr>
<td>Geography and economics</td>
<td>54</td>
<td>10.5</td>
</tr>
<tr>
<td>Geography and history</td>
<td>49</td>
<td>9.3</td>
</tr>
<tr>
<td>Kiswahili and literature</td>
<td>46</td>
<td>8.9</td>
</tr>
<tr>
<td>English language and literature</td>
<td>43</td>
<td>8.3</td>
</tr>
<tr>
<td>Business studies and mathematics</td>
<td>22</td>
<td>4.3</td>
</tr>
<tr>
<td>Mathematics and economics</td>
<td>8</td>
<td>1.6</td>
</tr>
<tr>
<td>Mathematics and geography</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>515</td>
<td>99.9</td>
</tr>
</tbody>
</table>
practice is an essential requirement in the two courses. For the BEDEP, teaching practice is scheduled to be assessed in the fifth and sixth years of study.

Table 11.5 shows the total number of units and hours (including those for Education) of end-of-year examinations taken by geography and history students in the BEDEP and the residential BEd course. According to the data in the table, in education students in the two courses are subjected to nearly the same number of study units and hours of examination. In each of the two academic subjects, the BEDEP students have three units fewer while in the examination they are subjected to slightly more hours than is the case for the residential course.

The time taken to graduate constitutes a major difference between the BEDEP and the residential course. The BEDEP curriculum is divided into six parts, each (comprising the equivalent of one semester’s work for residential students) expected to be covered in a year. For each subject the work is divided into study units. Each unit contains the equivalent of material covered by residential students in 35 one-hour lectures. The BEDEP students are expected to spend a minimum of 70 hours, spread over ten weeks, studying each unit. Thus, the pace of the BEDEP student is half the pace of the residential student. In other words, whereas the residential course is planned to be completed in three years, a BEDEP student is expected to spend a minimum of six years.6 Bearing in mind the exigencies of study through distance methods, students have the option to extend the completion period to ten years.

EXAMINATIONS

As in the case of the residential course, all BEDEP study units are examined during the year in which they are studied. The examinations consist of continuous assessment of written assignments (two per unit), tests (two per
Continuing education unit), demonstrations (for example in practical teaching), projects, and written papers taken at the end of the year. Continuous assessment of written assignments accounts for 30 per cent (of which 50 per cent constitutes marks obtained from supervised tests and 50 per cent from unsupervised written assignments), while the end-of-year written examination accounts for 70 per cent. No student is allowed to proceed to the next part of study until he or she has passed in all papers prescribed for each subject in the previous part. In order to be awarded a degree, a student must sit and pass the prescribed units of study, pass practical teaching, and attend face-to-face sessions at regional centres and the campus. As is the case for residential students, the degree certificates are classified using the following formula:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class Honours</td>
<td>70% and above</td>
</tr>
<tr>
<td>2nd Class Honours (upper division)</td>
<td>60–69%</td>
</tr>
<tr>
<td>2nd Class Honours (lower division)</td>
<td>50–59%</td>
</tr>
<tr>
<td>Pass</td>
<td>40–49%</td>
</tr>
</tbody>
</table>

**DELIVERY SYSTEM**

Most scholars on the subject agree that the quality of education through distance learning is heavily dependent on the development and implementation of an appropriate delivery system. Keegan (1986) argues that, unlike in conventional university courses where face-to-face tuition predominates, because in an external degree programme the tutor and the learner are physically separated during most of the learning process, careful attention needs to be given to the delivery system. He maintains that a distance education delivery system should have:

- a well-organised human resource base geared to both planning and preparation of learning materials and provision of student support services
- choice and use of appropriate technical media (print, audio, visual, computer, and so on)
- two-way communication in the correspondence material
- occasional meetings between teacher and students, and among students for both didactic and socialisation purposes.

As described in the following paragraphs, the four characteristics are exhibited in the organisation of the BEDEP.

**The human resource base**

Four categories of staff are involved in the planning and implementation of the delivery system. First, currently permanent employees of the faculty are deployed as follows: 11 professionals (one professor and ten lecturers) at the Kikuyu campus and six tutors (lecturer level) at regional centres. Eight of the
professionals at the campus are designated as co-ordinators of subjects in the programme. Subject co-ordination includes professional and administrative management of training of part-time professionals in the programme, development and production of correspondence materials, face-to-face tutorials, and conduct of examinations. Second, the department recruits part-time professionals for the development of correspondence materials and as tutors for face-to-face sessions. By March 1990, 191 such part-timers had been recruited, with 188 (98 per cent) being teachers in the country’s state universities. Third, teachers in teacher-education colleges and secondary schools are recruited as part-time tutors in regional face-to-face sessions.

All part-time professionals, who are regarded as experts in their academic disciplines, are given on-the-job training in distance education as a teaching-learning strategy; development of correspondence materials (with emphasis on content presentation and motivational instructional devices); reviewing and editing study materials; tutoring in a distance study system; characteristics of distance-education students; and student support, including guidance and counselling.

The fourth category of the human resource base is the support staff in the department. There is an establishment of 32, including administrative, secretarial, technical and auxiliary staff.

**Choice and use of media**

Two different types of media are used in the BEDEP, namely print materials and audiocassette programmes. It was decided that the programme would use audiocassettes instead of radio broadcasts because the number of students was too small for the economic use of air time, and as compared to radio, audiocassettes give the students more flexibility in that they can play and replay a cassette at their own convenience.

The printed materials consist of specially developed correspondence booklets and selected textbooks. For each study unit a booklet is prepared and handed over to the student for study at home. The content of this booklet, which is organised into ‘lectures’, constitutes the basic knowledge that the student should acquire.

The faculty recognises that, with perhaps the exception of mathematics, the material contained in the unit booklets, rather like lectures in the traditional on-campus degree courses, constitutes only a basic structure of knowledge which needs to be built upon through study of other sources. Most unit booklets contain advice to students along the lines illustrated by the following two excerpts.

*History of Education: Part 1 Unit*

Each lecture highlights the main ideas and developments that it deals with. However, in each case much more meat is needed to make it more complete than it is and therefore comprehensible to you. For this reason you have to read your recommended textbooks. (Emphasis added).
Continuing education

Business Studies: Part 1 Unit

Great emphasis is placed on the need for you to read as widely as possible … It is not possible to obtain information in any university course from a single book. This calls on you to make efforts to identify and read as many relevant books as possible.

Most unit booklets contain lists of books which are categorised as essential or recommended reading. During the first year of the programme, the faculty used part of the fees paid for the course to buy essential books and distributed them to students. This approach proved to be cumbersome and has been abandoned. Currently, the students are expected either to borrow books from libraries (including those owned by public universities, the National Library Service, and non-government institutions) or individually to purchase their own books from booksellers (in particular the university bookshop at UON).

A number of problems are apparent with regard to the availability of books for the course. First, some of the libraries from which students are encouraged to borrow lack the financial resources necessary for acquiring a sufficiently large stock of books relevant to the course. Observations and interviews at two of the state universities’ libraries revealed that there were serious financial constraints in maintaining supply. Second, for students who live far away, regular use of the library is inhibited by the expenses (time and money) involved in visiting the library, short loan periods for books, and restricted use of certain rare books and materials. Given these problems, the BEDEP students probably have to spend more on reading materials than their counterparts attending internal courses. This heavier financial burden may be a contributing factor to drop-out from the course.

Two-way communication

There is evidence that the development of the BEDEP correspondence material is responsive to the need to establish two-way communication between the writer/tutor and the student. The opening sentence in the faculty-produced Notes for writers and editors states that ‘An effective instructional study text in distance education must ensure that there is interaction between study text and the learner.’

Bearing in mind this essential requirement, a draft study unit produced by a writer is reviewed and edited by other experts in the subject so as to check on the accuracy of facts, concepts and balance in arguments, and improve its communication strength. In developing audiocassettes, which supplement the print material, emphasis is placed on the role of audio materials in relation to the learning needs of students, and learner involvement needs in writing for the ear. Specifically, the audio materials are expected to highlight important aspects of the content in subject units; provide concrete examples or case discussions to explain or shed more light on some abstract ideas discussed in
the print materials; address specialised areas (such as phonology in the study of language or dramatisation in literature) that cannot easily be tackled through print material; and provide general tutorial and counselling services to students.

Scrutiny of a sample of unit booklets revealed that a lot of attention is given to guiding the student and nurturing dialogue. The content is structured into small and manageable learning chunks. Equally important, the booklets state behavioural objectives (for the whole unit and for individual lectures) in terms of what the student should know or be able to do as a result of successful study; give self-assessment exercises and questions to enable the student to reflect on text learnt or about to be learnt; contain activities which require the student to do something (such as write an essay, list points, carry out a field interview, draw a diagram or map, complete a calculation, or summarise a chapter in a book); and give answers (at the end of a lecture or booklet) to some of the activities which are stated in the form of questions. The booklets prompt students to discuss their responses to the material with peers and tutors during face-to-face tutorials and seminars.

It was learned that, partly because of the systematic and sequenced approach used in developing the material, the booklets were in great demand among students in related residential courses.

Two-way communication is also provided through assignments prepared by the unit writers. In relation to each unit studied, the students are required to respond in writing to assignments which are marked and returned to them. In addition to marking the assignments for examination purposes, markers (in most cases the unit writers/tutors) are expected to make written comments which provide formative feedback to the students. Equally important, the marking exercise gives the writer/tutor feedback which should facilitate the planning and conduct of face-to-face tutorials, and the revision of existing materials and development of new ones.

**Face-to-face sessions**

Recognising the fact that dialogue through correspondence materials is not a perfect substitute for face-to-face teacher-student and student-student group dynamics, Keegan (1986, p. 126) warns that:

> The separation of the teaching acts and the learning acts that is characteristic of distance education brings about difficulties in the achievement of interpersonal communication between teacher and student and this [is] linked to the eventual quality of the learning achieved.

In order to improve the quality of learning in the BEDEP, study through correspondence is supplemented by regional and on-campus face-to-face
tutorials and seminars. Under the supervision of the university’s six extra-
mural centres (at Nairobi, Mombasa, Kisumu, Kakamega, Nakuru and Nyeri),
weekend sessions are organised to take place one day per month at service/
study centres. Service/study centres, selected to serve a concentration of
students from adjoining districts, are located in teachers’ colleges or secondary
schools which provide facilities such as classrooms and libraries. During these
field sessions, the tutors are expected to organise discussion and/or tuition on
topics identified by the students, give practice exercises to the students, and
provide a counselling service to the students. In addition to these sessions,
students within a region are encouraged to use the service/study centres and
the extra-mural centres as forums for interaction with other students and
sources of support in the course of self-study.

The BEDEP students are required to attend 18 weeks (21 days per year) of
mandatory on-campus sessions. During these sessions the students are given
as much on-campus university experience as possible, with emphasis being
placed on providing opportunities for student-student and tutor-student
interaction. Specific activities include orientation and distribution of course
materials; lectures and tutorials to supplement the correspondence materials
and to deal with parts of the course that require face-to-face teaching; use of
the university library and bookshop; and administration of supervised tests
and examinations.

COSTS AND FINANCE

The remaining part of this chapter discusses the BEDEP’s expenses and
sources of revenue, constraints in financing both the capital and the recurrent
aspects of the programme, and the future of the programme in relation to the
interplay between financial constraints and attitudes to EDP as a strategy in
higher education.

Yearly costs

The yearly costs of the BEDEP are summarised in Table 11.6. Detailed
analyses of the cost data are in the tables in the Appendix to this chapter. In
calculating the yearly costs, account has been taken of the fact that some
activities undertaken within the year will have an effect in subsequent years.
For instance, it is assumed that the majority of material developers and tutors
trained in a year (Appendix Tables 11A.6, 11A.7 and 11A.10) would be
available to the programme for at least six years; thus the costs of training and
production have been adjusted by a factor of six. A similar argument has been
used to adjust the costs of material duplication (Appendix Tables 11A.8 and
11A.9).
Table 11.6 Yearly costs of the BEDEP (percentages in parentheses) (Currency: Kenya pounds)

**Capital costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Costs (Currency: Kenya pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td></td>
</tr>
<tr>
<td>- buildings</td>
<td>2,279</td>
</tr>
<tr>
<td>- furniture</td>
<td>2,605</td>
</tr>
<tr>
<td>- equipment</td>
<td>2,371</td>
</tr>
<tr>
<td>Sub-total</td>
<td>7,255 (1.14)</td>
</tr>
<tr>
<td>Printing</td>
<td></td>
</tr>
<tr>
<td>- buildings</td>
<td>1,456</td>
</tr>
<tr>
<td>- furniture</td>
<td>622</td>
</tr>
<tr>
<td>- equipment</td>
<td>9,042</td>
</tr>
<tr>
<td>Sub-total</td>
<td>11,120 (1.75)</td>
</tr>
<tr>
<td>Cassette production</td>
<td></td>
</tr>
<tr>
<td>- buildings</td>
<td>1,732</td>
</tr>
<tr>
<td>- furniture</td>
<td>835</td>
</tr>
<tr>
<td>- equipment</td>
<td>738</td>
</tr>
<tr>
<td>Sub-total</td>
<td>3,305 (0.52)</td>
</tr>
</tbody>
</table>

**Recurrent costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Costs (Currency: Kenya pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td></td>
</tr>
<tr>
<td>- professional staff</td>
<td>21,773</td>
</tr>
<tr>
<td>- support staff</td>
<td>21,651</td>
</tr>
<tr>
<td>- services</td>
<td>10,817</td>
</tr>
<tr>
<td>Sub-total</td>
<td>54,241 (8.53)</td>
</tr>
<tr>
<td>Materials development</td>
<td></td>
</tr>
<tr>
<td>- professional staff</td>
<td>38,000</td>
</tr>
<tr>
<td>- part-time staff</td>
<td>25,555</td>
</tr>
<tr>
<td>Sub-total</td>
<td>63,555 (10.00)</td>
</tr>
<tr>
<td>Materials duplication</td>
<td></td>
</tr>
<tr>
<td>Support staff</td>
<td>28,155 (4.43)</td>
</tr>
</tbody>
</table>

Other

<table>
<thead>
<tr>
<th>Category</th>
<th>Costs (Currency: Kenya pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- plate making</td>
<td>17,672</td>
</tr>
<tr>
<td>- films</td>
<td>4,331</td>
</tr>
<tr>
<td>- developing</td>
<td>3,300</td>
</tr>
<tr>
<td>- ink</td>
<td>1,650</td>
</tr>
<tr>
<td>- cassette recording</td>
<td>234</td>
</tr>
<tr>
<td>- cassette duplication</td>
<td>2,079</td>
</tr>
<tr>
<td>Sub-total</td>
<td>29,266 (4.60)</td>
</tr>
</tbody>
</table>

**Total fixed costs**

196,897 (30.97)

**Variable costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Costs (Currency: Kenya pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital costs</td>
<td></td>
</tr>
<tr>
<td>classrooms</td>
<td>1,692 (0.27)</td>
</tr>
</tbody>
</table>
Continuing education

Table 11.6 Continued

**Recurrent costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face sessions</td>
<td></td>
</tr>
<tr>
<td>- professional staff</td>
<td>38,000</td>
</tr>
<tr>
<td>- part-time staff</td>
<td>97,583</td>
</tr>
<tr>
<td>Sub-total</td>
<td>135,583 (21.32)</td>
</tr>
<tr>
<td>Material duplication</td>
<td></td>
</tr>
<tr>
<td>- paper</td>
<td>4,326</td>
</tr>
<tr>
<td>- cassettes</td>
<td>9,012</td>
</tr>
<tr>
<td>Sub-total</td>
<td>13,338 (2.10)</td>
</tr>
<tr>
<td>Textbooks</td>
<td>77,250 (12.15)</td>
</tr>
<tr>
<td>Teaching practice</td>
<td>5,019 (0.79)</td>
</tr>
<tr>
<td>Examinations</td>
<td>11,896 (1.87)</td>
</tr>
<tr>
<td>Opportunity costs</td>
<td>194,155 (30.54)</td>
</tr>
</tbody>
</table>


**TOTAL VARIABLE COSTS**

438,933 (69.03)

**TOTAL FIXED AND VARIABLE COSTS**

635,830 ($599,156) (100.00)

---

Table 11.7 Yearly per capita costs of the residential BEd (Currency: Kenya pounds)

**Capital costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture rooms</td>
<td>4 (0.12)</td>
</tr>
<tr>
<td>Dormitories</td>
<td>5 (0.15)</td>
</tr>
<tr>
<td>Administration</td>
<td>14 (0.42)</td>
</tr>
<tr>
<td>Equipment</td>
<td>5 (0.15)</td>
</tr>
<tr>
<td>Sub-total</td>
<td>28 (0.84)</td>
</tr>
</tbody>
</table>

**Recurrent costs**

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and office</td>
<td>703 (21.13)</td>
</tr>
<tr>
<td>Travelling and transport</td>
<td>76 (2.28)</td>
</tr>
<tr>
<td>Equipment maintenance</td>
<td>81 (2.44)</td>
</tr>
<tr>
<td>Personal emoluments</td>
<td>1,524 (45.81)</td>
</tr>
<tr>
<td>Students' welfare</td>
<td>772 (23.20)</td>
</tr>
<tr>
<td>Sub-total</td>
<td>3,156 (94.86)</td>
</tr>
<tr>
<td>Opportunity costs</td>
<td>143 (4.30)</td>
</tr>
</tbody>
</table>

**TOTAL OF ALL COSTS**

3,327 ($3,135) (100.00)

**Notes**

1. The capital costs are estimated annualised or shadow costs.
2. The recurrent costs were calculated from the 1989/90 official figures obtained from the University of Nairobi.
The cost of material development in Table 11.6 is an aggregate of the relevant figures in Appendix Tables 11A.6 and 11A.7. Similarly, the relevant figures in Appendix Tables 11A.8 and 11A.9 have been aggregated to arrive at the fixed and variable costs of material duplication in Table 11.6.

The cost/student/year in Table 11.6 should be compared to the yearly per capita cost of the residential BEd in Table 11.7. This makes it possible to calculate two cost functions, including and omitting opportunity costs (to produce a figure in 1988 US dollars the 1989 conversion rate of 20.57 Kenya shillings = US $1.00 and the US GDP deflator have been used to convert to 1988 dollars):

Annual cost function including opportunity costs
\[ TC = F + VC(N) \]
\[ = 196,897 + 852.30(515) \{1988 \$185,540 + 803.14(515)\} \]
\[ = K£635,830 (\$599,157) \]

Annual cost function omitting opportunity costs
\[ TC = F + VC(N) \]
\[ = 196,897 + 475.30(515) \{1988 \$185,540 + 447.89(515)\} \]
\[ = K£441,675 (\$416,203) \]

The per capita cost of the residential BEd course is about 2.7 times that of the BEDEP. If the opportunity costs of the residential course had been calculated at the same rate as for the BEDEP, the cost of the residential course would have been 3.7 times that of the external degree. As compared to 30.53 per cent for the BEDEP, opportunity costs for the residential course constitute only 4.3 per cent of the total cost. As explained in the following paragraphs, the difference between these two costs is explained by the fact that, compared to a student who enters university immediately after leaving school, a BEDEP student has a much better chance of converting the time spent on university studies into financial earnings.

The BEDEP makes heavy demands on the time available to the students who are also workers. A student is expected to spend 490 hours studying the seven units which should be completed in a year (that is, 70 hours per unit). Assuming that eight hours a day are devoted to the activity, the student spends another 264 hours on face-to-face sessions. Thus, in one year the course consumes 754 hours, about 50 per cent of the student’s ‘free’ time. In the case of a student who is working as a teacher, it is reasonable to assume that the remainder of the ‘free’ time is fully occupied by activities such as lesson preparation and marking, family chores, and perhaps a limited range of social activities.

There is evidence that, given the real value of salaries, activities which make demands on a teacher’s free time impinge on his or her ability to make ends meet. With reference to sub-Saharan Africa, Williams (1986, p. 97) makes the observation that:
economic constraints...have bitten deeply into the real value of salaries of teachers... They are tempted to engage in other economic activities to supplement their income, ‘moonlighting’ by doing unauthorised supplementary work and—in urban areas particularly—drawing an increasing share of their income from private coaching.

In a more recent study of six Kenyan secondary schools, Makau (1990) found that teachers were engaged in a multiplicity of unofficial income-generating activities, with coaching being highly significant. In one case a teacher indicated that he spent 19 hours per week coaching a group of primary-school pupils.

Bearing this in mind, and using the average coaching fees/hour (about K£0.5 in Nairobi), an amount totalling £194,155 of earnings foregone by the BEDEP students is calculated in respect of the 754 hours spent annually on the course.

With regard to the calculation of the opportunity costs of school leavers who proceed to residential university courses, Psacharopoulos and Woodhall (1985, p. 34) state that ‘The earnings foregone by a student in higher education...are usually determined from the average earnings of secondary school leavers who are in employment.’ However, Psacharopoulos and Woodhall warn that in countries with high unemployment rates of school leavers, there is a danger of overestimating the opportunity costs of those who proceed to university, ‘since the alternative to [higher] education for some students would be unemployment, rather than a wage’ (ibid.). They suggest that in the face of high unemployment rates, the average earnings of school leavers should be scaled down in order to arrive at more realistic opportunity costs. This suggestion has been followed in estimating the opportunity costs of the residential BEd course.

In Kenya a large proportion of secondary school leavers are employed as untrained teachers in public and private schools. It is estimated that the average annual salary of such a teacher would be about K£950. This figure has been used to calculate the opportunity costs of the residential BEd course. Makau (1985, Table 1, p. 2) estimated that about 85 per cent of university and secondary-school graduates who entered the labour market between 1978 and 1983 were unlikely to get a job in the modern sector of the economy, including teaching. Unemployment is likely to have got worse since 1983. However, as a rough measure, K£143 (about 15 per cent of K£950) has been estimated as the opportunity cost incurred by a student in the residential course.

Costs of projected enrolments

The presentation of costs in fixed and variable categories makes it possible to look at the implications of increasing enrolments. BEDEP enrolments are projected to rise to 3,700 in 1998. Beyond this date, hypothetical enrolments could be projected to the year 2020. Table 11.8 shows the relationship between rising enrolments and costs up to the year 2020.

The faculty staff maintained that the 1990 fixed costs could be utilised to
Table 11.8 Projected enrolments and costs of the BEDEP, 1990–2020 (cumulative percentage increases in parentheses)

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrolment</th>
<th>Fixed cost</th>
<th>Variable cost</th>
<th>Total cost</th>
<th>Cost per year per student</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>515</td>
<td>196,897</td>
<td>438,933</td>
<td>635,830</td>
<td>1,235</td>
</tr>
<tr>
<td>1992</td>
<td>2,800</td>
<td>196,897</td>
<td>2,386,432</td>
<td>2,583,329</td>
<td>923</td>
</tr>
<tr>
<td>1994</td>
<td>3,200</td>
<td>196,897</td>
<td>2,727,351</td>
<td>2,924,248</td>
<td>914</td>
</tr>
<tr>
<td>1996</td>
<td>3,400</td>
<td>196,897</td>
<td>2,897,810</td>
<td>3,094,248</td>
<td>910</td>
</tr>
<tr>
<td>1998</td>
<td>3,700</td>
<td>196,897</td>
<td>3,153,499</td>
<td>3,350,396</td>
<td>906</td>
</tr>
<tr>
<td>2005</td>
<td>10,000</td>
<td>196,897</td>
<td>8,522,971</td>
<td>8,719,868</td>
<td>872</td>
</tr>
<tr>
<td>2010</td>
<td>20,000</td>
<td>196,897</td>
<td>17,045,942</td>
<td>17,242,839</td>
<td>862</td>
</tr>
<tr>
<td>2020</td>
<td>50,000</td>
<td>197,897</td>
<td>42,614,854</td>
<td>42,811,751</td>
<td>856</td>
</tr>
</tbody>
</table>
service higher enrolments. If we assume that the 1990 fixed costs could cater for enrolments of up to 50,000, according to the projections in Table 11.8, between 1990 and 2020 enrolments would grow by 9,609 per cent while the total cost would rise by 6,633 per cent. These projections serve to underscore an important cost aspect of EDP. Once the basic plant for the production of correspondence materials has been installed, with a small core of permanent staff, a programme (such as the BEDEP) is capable of sustaining higher enrolments at no extra fixed costs. Put differently, EDP is most cost-effective when its fixed costs are servicing the maximum number of students possible. In this regard, EDP is in sharp contrast with traditional university courses, in which substantial increases in enrolments imply increased expenditure on buildings, equipment, and salaries of permanent professional and auxiliary staff.

The cost of successfully completing the course

The exact cost per successful student can only be arrived at after the current cohort has been given the full ten years to complete the course. However, the data available can be used to make an estimate. Using the data in the section on ‘Students’ progression rate’, the eventual outcome of the first cohort could be predicted as per Table 11.9.

Using the yearly per capita cost (see Table 11.6), the total costs of those likely to complete the course successfully are shown in Table 11.10.

In order to arrive at the full cost of completion, the costs of drop-outs should be taken into account. All drop-outs will have incurred fixed costs (as per Table 11.6). It could be assumed that the variable costs of the 104 drop-outs

---

**Table 11.9 Estimates of course completion rates**

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed exam, likely to complete in 6 years</td>
<td>158</td>
<td>(31)</td>
</tr>
<tr>
<td>Referred in paper(s), likely to complete in 7 years</td>
<td>61</td>
<td>(12)</td>
</tr>
<tr>
<td>Referred for a year/did not submit all course assignments, likely to complete in 8 years</td>
<td>22</td>
<td>(4)</td>
</tr>
<tr>
<td>Did not take exam, likely to complete in 10 years</td>
<td>34</td>
<td>(7)</td>
</tr>
<tr>
<td>Total of successes</td>
<td>275</td>
<td>(54)</td>
</tr>
<tr>
<td>Did not take exam, will drop out between 3rd and 5th year</td>
<td>136</td>
<td>(26)</td>
</tr>
<tr>
<td>Dropped out soon after registration</td>
<td>104</td>
<td>(20)</td>
</tr>
<tr>
<td>Total of failures</td>
<td>240</td>
<td>(46)</td>
</tr>
<tr>
<td><strong>TOTAL ENROLMENT</strong></td>
<td>515</td>
<td>(100)</td>
</tr>
</tbody>
</table>

*Note: It is estimated that, of the 170 students who had not taken the Part 2 exam, but were ‘still interested’ in the course, 34 (20 per cent) will successfully complete the course. It is estimated that the remaining 136 will drop out between the third and fifth year at the rate of 50 per cent per annum.*
who seem to have done little or nothing after registration are negligible. However, drop-outs in the third, fourth and fifth years will incur variable costs at an annual rate of K£842 per student (Table 11.6). The costs of drop-outs are shown in Table 11.11.

In order for 275 students successfully to complete the course (Table 11.9), a total expenditure of K£3,203,543 ($3,018,768) (aggregate of the totals in Tables 11.10 and 11.11) will have been incurred. Thus the per capita cost of successful completion, calculated as total expenditure on the course divided by the number of successful students, will be K£11,649 ($10,977).
Financing the BEDEP

Table 11.12 shows the sources of finance for the BEDEP.

The data in Table 11.12 point to a significant financing difference between the BEDEP and the residential course. Whereas BEDEP students are expected to incur substantial opportunity costs, provide textbooks and pay a substantial fee before receiving correspondence material, their counterparts in the residential course not only have their tuition paid for by the government, but also are each provided with a long term loan of K£772 (Table 11.7) for subsistence and textbooks. This difference most likely constitutes the backbone of the claim, mentioned earlier, that ‘financial constraints’ have contributed to drop-out from the BEDEP.

FINANCIAL CONSTRAINTS

There is evidence that, as is the case in the rest of the university, the BEDEP is experiencing a decline in its budgetary allocation. For the academic year 1989/90 the amount allocated to the BEDEP for teaching, office expenses, transport, equipment and furniture was 74 per cent of the equivalent amount during 1986/87. For reasons explained in the following pages, there is a real danger that, with increasing pressure on resources for higher education, priority may be given to residential courses which benefit school leavers.

A survey of the accommodation at CEES revealed severe inadequacies in staff offices, and reproduction and storage rooms. Most professional and senior administrative staff shared small offices, which hampered professional consultations between the permanent staff and part-timers involved in the programme. Inadequate reproduction and storage facilities for print materials meant that a large number of staff worked in crowded conditions. And, partly because of lack of studio space, the recording and duplication of audiocassettes depended on use of borrowed facilities outside the college.

Because of inadequacy of accommodation at CEES and out-dated equipment, recording and reproduction of audiocassettes takes place at the Kenya Institute of Education (KIE), about 20 km from the Kikuyu campus. Reliance on KIE facilities makes long-term planning of the development of audio materials difficult and hinders the growth of in-house expertise.

BEDEP academic records, as well as those pertaining to the management of the department, are kept manually. Efficiency could be greatly improved by introducing an automated system.

Two personnel problems were noted. First, most full-time professional staff in the department co-ordinate too many subjects, some of which they may not have adequate knowledge of. This situation is expected to improve when the department is able to recruit its full complement of staff. Second, reliance on part-time course writers and tutors can cause problems. Some part-timers were sometimes occupied with their normal jobs at the time the BEDEP wished to
use their services. Tutor absenteeism was a problem in some regional face-to-face sessions.

LIMITATIONS OF EDP AS A STRATEGY IN HIGHER EDUCATION

Use of distance methods in higher education in developing countries such as Kenya faces a number of problems associated with constraints in financial resources, society’s perceptions of the role of higher education, and misconceptions among conventional university staff about the quality of education obtained through distance education.

The conventional university as an inhibiting factor

Although Kenya has a long tradition of education through correspondence, the development of an EDP offered by a local university became a reality only in the 1980s. By this time the conventional residential university was seen by most influential sectors of society as the ideal, and resources were concentrated on the development of conventional institutions. Although it is accepted that EDP has potential in the development of Kenya’s human resources, the establishment of an autonomous university which would only offer degree courses through distance methods has yet to be given priority. Thus, the EDP of UON was introduced as one of the programmes of a conventional university.

The fact that the BEDEP is administered as part of a conventional university would seem to inhibit the programme’s development as a permanent feature of UON. A departmental paper from FES highlights this:

Since [the] establishment [of the BEDEP] the members of both Deans Committee and the Senate have not understood it completely…they want it to conform to regulations governing the internal departments. For example, ideally distance study students should take examinations when they are ready. This has been stated in the regulations but implementing it is seen as violation of the conventional rules.

Its current status as part of a conventional state university means that the BEDEP is not in a position to develop an independent resource base. FES is subject to the university’s accounting regulations; thus the faculty is not allowed to accumulate savings from sources such as private donors or sale of publications. Further, the faculty is not in a position to explore new ground in relation to raising revenue and developing fresh approaches to manpower development. Given more autonomy, and not necessarily confined to degree studies\textsuperscript{10} the institution could be encouraged to forge stronger links with clients (such as government departments, commerce and industry, professional
organisations, religious bodies, and private school organisations) for whom it could create job-related courses in return for economic fees.

**Current attitudes towards EDP**

The emergence of EDP as a vital part of university education faces three main obstacles. First, the University has tended to be seen as part of general education, and admission policy has been dominated by the need to offer university places to as many qualified school leavers as possible.\(^1\) There seems to be little systematic effort to relate university enrolments to existing or planned outlets in the economy.\(^1\) It seems that courses such as the BEDEP, which attempt to relate university study to manpower needs, are the exception rather than the rule.

Second, given that EDP is likely to be more successful where the students are mature and are required to relate formal study to their current careers, university education through distance methods is not viable for young and unemployed school leavers.\(^1\)

Thus it is not surprising that, rather than leave CEES to concentrate on the development of projected external degree courses, a residential BEd catering for school leavers has been introduced. Implicit in this decision was the introduction of competition for resources between EDP and the internal course.\(^1\)

A third reason why EDP continues to be somewhat peripheral in the UON set-up seems to be the long association of CEES with non-degree courses offered through distance methods. CEES developed out of the Institute for Adult Studies which, since 1967, has undertaken in-service training of primary-school teachers and a variety of extra-mural courses.

Discussion with a number of staff, from both FES and some of the internal faculties, indicated that the introduction of EDP at CEES had not diminished some of the old prejudices. For instance, rather than seeing the use of part-time material writers and tutors as a way of utilising scarce resources to offer university education to more Kenyans, the practice was seen by some as evidence that the FES staff were not up to the intellectual standard of university dons.\(^1\)

**CONCLUSIONS**

Evidence has been provided to show that in relation to gender and geographical representation, and curriculum offerings, the BEDEP is similar in quality to the residential BEd. Further, the discussion of the delivery system has shown that, through a satisfactorily developed human resource base, a good choice of media, and carefully planned and executed approaches to maximise two-way communication in the learning process, the BEDEP is offering a sound first-degree course for teachers.

Definite conclusions on the students’ progression rate cannot be made at this stage, but the evidence presented shows that the rate of progress is comparable to
that of similar programmes in other countries. It is estimated that, of the original intake of 515 students, 275 (54 per cent) are likely to successfully complete the course over a period ranging from six to ten years.

As compared to K£3,327 ($3,135) (Table 11.7) for the residential course, the BEDEP’s cost/student/year of K£1,235 ($1,164) (Table 11.6) would seem to indicate that EDP is a cheaper approach to university education. However, this could be misleading. Because the current enrolment is small (515 students), there is a high drop-out rate, and the course takes longer to complete, the BEDEP’s per capita cost of successful completion is likely to be higher than for the residential course. Of 1,450 BEd students who entered Kenyatta University in 1988–89, 1,400 (97 per cent) successfully completed the course in 1990–91. Using the costs in Table 11.7 and taking into account repetition and failures, this gives a per capita completion cost of K£10,430 ($9,828) for this residential course, which is lower than the figure of K£11,649 ($10,977) estimated for the BEDEP.

With higher enrolments in the BEDEP, advantage could be taken of relatively low fixed costs to bring down completion costs. For example, if enrolment were raised to 3,700 as projected for 1998, fixed costs remained at the 1990 figure, and the progression proportions in Table 11.9 are used, the BEDEP’s per capita cost of successful completion would come down to K£9,008 ($8,488), that is, K£1,422 ($1,340) less than the residential course at Kenyatta University. These figures underscore a crucial point that if distance-education programmes such as the BEDEP are to merit a place on account of being cheaper than residential courses, optimal enrolments should be attained.

In spite of the potential of EDP as a relatively cheap and professionally sound form of higher education, because of a number of factors the BEDEP has not been given priority in university education. Kenyan society sees the conventional (residential) university as the ideal, and in the academic community there is widespread prejudice against EDP as an inferior form of higher education. These attitudes are compounded by the view that emphasis should be placed on providing young school-leavers with openings through university. In view of these factors, it is difficult to predict the future of the BEDEP. Perhaps it is instructive that it proved impossible to get a clear statement as to whether projected higher enrolments and new external degree courses would become a reality.

NOTES

1 There are plans to set up a faculty of science.
2 There are plans to set up two additional departments.
3 The EDP, recommended in general terms by two government commissions on education (the 1964 Kenya Education Commission and the 1976 National Committee on Educational Objectives and Policies), was subjected to detailed study by a team of three professionals from the UK Open University. The Open University report, *A feasibility report on the first degrees by external studies*, 1976 provided basic data which have been useful in planning the ongoing programme.
Continuing education

4 The development of home science materials for the first two years has been completed, while for the biological sciences, chemistry and physics, development of first-year materials is at an advanced stage. Materials for mathematics have been under development as part of the BEDEP (Arts).

5 A student was regarded as having taken up his or her place if he or she paid some of the fees and enrolled for study in specific subjects. The 1989–90 UON calendar states that there were 496 BEDEP students. This number, which constituted 4.9 per cent of the University’s undergraduate enrolment, was balanced by 445 students in the residential BEd course.

6 The Students’ handbook states that in exceptional cases the university senate may allow completion in a shorter period.

7 Eight of the professionals are members of staff of the department of education, while the remaining three are deployed from other departments of the FES. The department of education has yet to fill established positions for an associate professor and three senior lecturers.

8 Assignments are bound separately from the unit booklet.

9 A student who is a practising teacher should have about 1,500 hours ‘free’ time in a year, calculated as follows: 195 days of term time @ four hours per day = 780 hours; 90 days of vacation @ eight hours per day = 720 hours.

10 As illustrated by the French National Centre for Distance Education by Correspondence, Radio and Television, a distance-education institution can be successfully organised to serve both general education (including EDP) and training for specific careers.

11 This emphasis reflects the country’s need to cater for the rapid quantitative growth of secondary education since 1963.

12 A number of studies have addressed the disparity between university enrolments and manpower requirements in the economy. For examples, see Loubser, J.J. (1983): Human resource development in Kenya: an overview, Ottawa: Canadian International Development Agency; Hughes, R. (1985): Human capital: the wealth of nations or drain on resources, IDS Working Paper No. 428, University of Nairobi.

13 One member of the FES staff argued that EDP could be used to offer school leavers university education if financial resources were diverted from developing new conventional university opportunities to (a) creating employment openings for would-be students and (b) developing a suitable distance-education infrastructure.

14 In spite of the implicit competition for resources, the introduction of the residential course has enhanced the CEES human resource base from which the BEDEP could readily recruit part-time expertise. Further, the physical facilities being provided for the residential course will benefit the BEDEP, particularly with regard to the conduct of on-campus face-to-face sessions.

15 Prejudice against distance education is not confined to Kenya. Referring to developed and developing countries, M.W.Neil states that “there is still a great deal of opposition to the development of distance-learning systems, particularly among academic staff, administrators and planners in conventional institutions and organisations” (Education of adults at a distance—a report of the Open University’s tenth anniversary international conference, London: Kogan Page, 1981, p. 40).

REFERENCES


**APPENDIX 11A: COST DATA—DETAILED TABLES**

**General notes**

1 The tables were compiled from data obtained from interviews with the staff of the education department, departmental documents and the university calendar, and observations made in the department. The furniture and equipment was costed from figures obtained from commercial dealers in Nairobi.

2 All amounts in the following tables are in Kenya pounds. One pound = 20 Kenya shillings.

3 Annualised costs are based on a discount rate of 7.5 per cent.

4 The life expectancies of buildings, printing equipment and office equipment (including furniture) are 50, 20 and ten years respectively.

5 A building cost of K£100 per square metre is estimated.

**Capital costs**

*Table 11A.1 Yearly capital costs of administration of the Department of Education*

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Unit cost</th>
<th>Annualised cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office space – m²</td>
<td>296</td>
<td>100</td>
<td>2,279</td>
</tr>
<tr>
<td><strong>Furniture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- office bureau (P)</td>
<td>1</td>
<td>438</td>
<td>16</td>
</tr>
<tr>
<td>- office bureau (D)</td>
<td>1</td>
<td>438</td>
<td>32</td>
</tr>
<tr>
<td>- office bureau</td>
<td>3</td>
<td>438</td>
<td>192</td>
</tr>
<tr>
<td>- executive chairs (P)</td>
<td>1</td>
<td>270</td>
<td>10</td>
</tr>
<tr>
<td>- executive chairs (D)</td>
<td>1</td>
<td>270</td>
<td>20</td>
</tr>
<tr>
<td>- executive chairs</td>
<td>3</td>
<td>270</td>
<td>118</td>
</tr>
<tr>
<td>- office tables</td>
<td>10</td>
<td>162</td>
<td>237</td>
</tr>
<tr>
<td>- conference tables (P)</td>
<td>3</td>
<td>450</td>
<td>49</td>
</tr>
<tr>
<td>- secretary’s tables (P)</td>
<td>1</td>
<td>232</td>
<td>8</td>
</tr>
<tr>
<td>- secretary’s tables (D)</td>
<td>1</td>
<td>232</td>
<td>17</td>
</tr>
<tr>
<td>- secretary’s tables</td>
<td>2</td>
<td>232</td>
<td>68</td>
</tr>
<tr>
<td>- secretary’s chair (P)</td>
<td>1</td>
<td>77</td>
<td>3</td>
</tr>
</tbody>
</table>
### Table 11A.1 Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>secretary's chair (D)</td>
<td>1</td>
<td>77</td>
<td>6</td>
</tr>
<tr>
<td>secretary's chairs</td>
<td>2</td>
<td>77</td>
<td>22</td>
</tr>
<tr>
<td>table chairs (P)</td>
<td>5</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>table chairs (D)</td>
<td>5</td>
<td>46</td>
<td>17</td>
</tr>
<tr>
<td>table chairs</td>
<td>40</td>
<td>46</td>
<td>269</td>
</tr>
<tr>
<td>filing cabinets (P)</td>
<td>3</td>
<td>195</td>
<td>21</td>
</tr>
<tr>
<td>filing cabinets (D)</td>
<td>3</td>
<td>195</td>
<td>43</td>
</tr>
<tr>
<td>filing cabinets</td>
<td>19</td>
<td>195</td>
<td>541</td>
</tr>
<tr>
<td>metal cupboards</td>
<td>15</td>
<td>210</td>
<td>460</td>
</tr>
<tr>
<td>wooden cupboards</td>
<td>15</td>
<td>105</td>
<td>230</td>
</tr>
<tr>
<td>bookshelves</td>
<td>20</td>
<td>75</td>
<td>219</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
<td><strong>2,605</strong></td>
</tr>
</tbody>
</table>

**Equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>electric typewriters (P)</td>
<td>2</td>
<td>1,825</td>
<td>133</td>
</tr>
<tr>
<td>electric typewriters (D)</td>
<td>2</td>
<td>1,825</td>
<td>266</td>
</tr>
<tr>
<td>electric typewriters</td>
<td>4</td>
<td>1,825</td>
<td>1,066</td>
</tr>
<tr>
<td>manual typewriters</td>
<td>2</td>
<td>850</td>
<td>248</td>
</tr>
<tr>
<td>photocopiers</td>
<td>2</td>
<td>2,250</td>
<td>657</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
<td><strong>2,371</strong></td>
</tr>
</tbody>
</table>

**TOTAL**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>7,255</strong></td>
</tr>
</tbody>
</table>

*Note: Items marked (P) or (D) are for use in the Principal’s or Dean’s office respectively. Since the Principal and the Dean devote only a proportion of their time to the BEDEP, the annualised costs of items in the two offices have been adjusted by a factor of four and two respectively.*

### Table 11A.2 Yearly capital costs of production of print materials

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office space – m²</td>
<td>378</td>
<td>100</td>
<td>2,911</td>
</tr>
</tbody>
</table>

**Furniture**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>office bureau</td>
<td>1</td>
<td>438</td>
<td>64</td>
</tr>
<tr>
<td>executive chairs</td>
<td>1</td>
<td>270</td>
<td>39</td>
</tr>
<tr>
<td>office tables</td>
<td>6</td>
<td>162</td>
<td>142</td>
</tr>
<tr>
<td>table chairs</td>
<td>20</td>
<td>46</td>
<td>134</td>
</tr>
<tr>
<td>filing cabinets</td>
<td>15</td>
<td>195</td>
<td>427</td>
</tr>
<tr>
<td>metal cupboards</td>
<td>10</td>
<td>210</td>
<td>307</td>
</tr>
<tr>
<td>wooden cupboards</td>
<td>5</td>
<td>105</td>
<td>77</td>
</tr>
<tr>
<td>bookshelves</td>
<td>5</td>
<td>75</td>
<td>55</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
<td><strong>1,245</strong></td>
</tr>
</tbody>
</table>

**Equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>electric typewriters</td>
<td>7</td>
<td>1,825</td>
<td>1,865</td>
</tr>
<tr>
<td>manual typewriters</td>
<td>1</td>
<td>850</td>
<td>124</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
<td><strong>1,989</strong></td>
</tr>
</tbody>
</table>

**Printing equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Annualised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helioprint camera</td>
<td>1</td>
<td>8,437</td>
<td>827</td>
</tr>
</tbody>
</table>
Table 11A.3 Yearly capital costs of production of audio-cassettes

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit cost</th>
<th>Annualised cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office space</td>
<td>225</td>
<td>100</td>
</tr>
</tbody>
</table>

Furniture
- office bureau 1 438 64
- executive chairs 1 270 39
- office tables 4 162 95
- table chairs 10 46 67
- filing cabinets 10 195 285
- metal cupboards 1 210 153
- wooden cupboards 1 105 77
- bookshelves 1 75 55
Sub-total 835

Equipment
- cassette recorder 1 450 44
- cassette duplicator 1 4,380 429
- tape recorder 1 2,698 264
Sub-total 738

TOTAL 3,305

Note: The BEDEP shares capital equipment with the department of distance education. It is estimated that the two departments share the equipment on a one-to-one basis.
Table 11A.4 Yearly capital costs of classrooms for face-to-face sessions

<table>
<thead>
<tr>
<th>Area</th>
<th>Hours</th>
<th>Shadow price</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Education</td>
<td>160</td>
<td>32</td>
</tr>
<tr>
<td>- Academic disciplines</td>
<td>540</td>
<td>465</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>497</td>
</tr>
<tr>
<td>Regional</td>
<td>1,195</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,692</td>
<td></td>
</tr>
</tbody>
</table>

Notes
a. To arrive at the shadow cost, the buildings’ annualised costs are multiplied by the fraction ‘hours in use by the BEDEP divided by 4,380 hours in a year’.
b. With regard to regional sessions, the shadow price is a proportion of the annual rent for buildings at regional centres and classrooms in educational institutions used by the BEDEP.
c. It is assumed that the buildings should be in use for 12 hours per day, that is, 4,380 hours in a year of 365 days.

Recurrent costs

Table 11A.5 Yearly recurrent costs of administration

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td></td>
</tr>
<tr>
<td>- professional</td>
<td>21,773</td>
</tr>
<tr>
<td>- support</td>
<td>21,651</td>
</tr>
<tr>
<td>Sub-total</td>
<td>43,424</td>
</tr>
<tr>
<td>Services</td>
<td></td>
</tr>
<tr>
<td>- office supplies</td>
<td>4,000</td>
</tr>
<tr>
<td>- amenities</td>
<td>3,500</td>
</tr>
<tr>
<td>- maintenance</td>
<td>3,317</td>
</tr>
<tr>
<td>Sub-total</td>
<td>10,817</td>
</tr>
<tr>
<td>TOTAL</td>
<td>54,241</td>
</tr>
</tbody>
</table>

Notes
a. Personal emoluments for support staff have been adjusted to reflect the fact that they serve the departments of education and distance studies on an equal basis.
b. Amenities include water, electricity, post and telephone.
c. The cost of maintaining buildings and equipment has been estimated at one per cent of the capital cost.
Table 11A.6 Yearly recurrent costs of production of study units

<table>
<thead>
<tr>
<th>Permanent professional staff</th>
<th>30,000</th>
</tr>
</thead>
</table>

**Part-time staff:**

**Training writers, reviewers and editors (average for 1987, 1988 and 1989)**

- subsistence: 20,932
- travelling: 19,034
- consultants: 960
- stationery: 1,203
- administration: 1,134

**TOTAL**: 43,263

**Real yearly cost of training**: 7,210

**Production:**

<table>
<thead>
<tr>
<th>Units</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writers' fees</td>
<td>33</td>
<td>175.00</td>
</tr>
<tr>
<td>Reviewing fees</td>
<td>33</td>
<td>16.67</td>
</tr>
<tr>
<td>Editing fees</td>
<td>33</td>
<td>33.33</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

a. The figures in respect of training are averages of expenses of workshops held in 1987, 1988 and 1989. It is estimated that the personnel trained during the three years would be available to the BEDEP for at least six years. Thus, the yearly cost of training is estimated to be the average derived from the three years divided by six.

b. According to the department, once a study unit has been developed it should be used by three successive cohorts before it is revised. Consequently, in order to arrive at the real yearly cost, the rates of fees for writers, reviewers and editors have been divided by three.

---

Table 11A.7 Yearly recurrent costs of producing audio-cassettes

<table>
<thead>
<tr>
<th>Permanent professional staff</th>
<th>8,000</th>
</tr>
</thead>
</table>

**Part-time staff:**

**Training writers, reviewers and editors**

(average for 1987 and 1988)

- subsistence: 26,599
- travelling: 25,110
- consultants: 9,216
- stationery: 795
- administration: 500

**TOTAL**: 62,220

**Real yearly cost**: 10,370

**Production:**

<table>
<thead>
<tr>
<th>Cassettes</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writers' fees</td>
<td>66</td>
<td>8.33</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes

a. The figures in respect of training are averages of expenses of workshops held in 1987 and 1988. It is estimated that the personnel trained during the two years would be available to the BEDEP for at least six years. Thus, the real yearly cost of training is assumed to be the average for the two years divided by six.

b. On average, for each of the 33 study units produced in a year two audio-cassette programmes are produced.

c. According to the department, once a study unit has been developed it should be used by three successive cohorts before it is revised. Consequently, the rate of K£25 for producing one audiocassette programme has been divided by three.

Table 11A.8 Yearly recurrent costs of duplicating and distributing print materials

<table>
<thead>
<tr>
<th>Fixed costs</th>
<th>Support staff</th>
<th>20,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Plate making(^a)</td>
<td>33</td>
<td>535.50</td>
</tr>
<tr>
<td>- Films(^a)</td>
<td>33</td>
<td>131.25</td>
</tr>
<tr>
<td>- Developing</td>
<td>33</td>
<td>100.00</td>
</tr>
<tr>
<td>- U = Ink</td>
<td>33</td>
<td>50.00</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable costs(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper(^c)</td>
</tr>
<tr>
<td>Textbooks(^d)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

Notes

a. It was learned that a plate could be used to make at least two print runs, while with careful storage films could be re-used more than three times. Since a unit is expected to be used by at least three cohorts before it is revised, the rate for plate making has been halved while that for films has been divided by three.

b. Since study units are distributed to students during face-to-face sessions, no postage expenses are incurred.

c. The average cost of paper per study unit is K£1.2. Over the six years during which a student is expected to complete the course, he or she is expected to receive 42 study units. Thus, the yearly cost of paper per student is 1.2 multiplied by seven.

d. Each student is expected to spend K£150 per year on textbooks.

Table 11A.9 Yearly recurrent costs of duplicating and distributing audiocassettes

<table>
<thead>
<tr>
<th>Fixed costs</th>
<th>Support staff</th>
<th>8,155</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording</td>
<td>66</td>
<td>3.55(^*)</td>
</tr>
<tr>
<td>Duplicating</td>
<td>66</td>
<td>31.50</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11A.9 Continued

<table>
<thead>
<tr>
<th>Variable costs</th>
<th>Quantity</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassettes</td>
<td>515</td>
<td>17.50</td>
<td>9,012</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>19,480</strong></td>
</tr>
</tbody>
</table>

**Note**
a. According to the department, once a study unit has been developed it should be used by three successive cohorts before it is revised. Consequently, the rate of K£10.65 for recording one audio-cassette programme has been divided by three.

Table 11A.10 Yearly recurrent costs of face-to-face sessions

<table>
<thead>
<tr>
<th>Permanent professional staff</th>
<th>38,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Training of tutors (average for 1987, 1988 and 1989)</strong></td>
<td></td>
</tr>
<tr>
<td>- subsistence</td>
<td>13,921</td>
</tr>
<tr>
<td>- travelling</td>
<td>2,679</td>
</tr>
<tr>
<td>- stationery</td>
<td>483</td>
</tr>
<tr>
<td>- administration</td>
<td>169</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>17,252</strong></td>
</tr>
<tr>
<td><strong>Real yearly cost of training</strong></td>
<td><strong>2,875</strong></td>
</tr>
</tbody>
</table>

**On-campus sessions**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tutors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- fees (hourly)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>490</td>
<td>12</td>
</tr>
<tr>
<td>- transport</td>
<td>252</td>
<td>5</td>
</tr>
<tr>
<td>- stationery</td>
<td>252</td>
<td>5</td>
</tr>
<tr>
<td><strong>Students</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- transport</td>
<td>515</td>
<td>37</td>
</tr>
<tr>
<td>- subsistence</td>
<td>515</td>
<td>37</td>
</tr>
<tr>
<td>- stationery</td>
<td>515</td>
<td>6</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Regional sessions** |     |       |
| **Tutors** |     |       |
| - fees (hourly) | 864  | 12    | 10,368 |
| - transport | 384  | 5     | 1,920  |
| - stationery | 384  | 5     | 1,920  |
| **Students** |     |       |
| - transport | 515  | 30    | 15,450 |
| - subsistence | 515  | 24    | 12,360 |
| - stationery | 515  | 6     | 3,090  |
| **Sub-total** |     |       | **45,108** |
| **TOTAL** |     |       | **135,583** |

**Notes**
a. With respect to training of tutors, it was estimated that most of those trained during the three years would be available to the BEDEP for at least six years. Thus, the real yearly cost of training is assumed to be the average for 1987, 1988 and 1989 divided by six.
b. Currently tutors are paid a professional fee of K£12 per hour.
c. With respect to tutors’ transport and stationery, the figures in the ‘Quantity’ column represent the total number of appearances as per written schedules and observations at face-to-face sessions. As is the case with students, a per capita rate was estimated.

**Table 11A.11 Costs of teaching practice**

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment fees&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2,060</td>
<td>12</td>
<td>24,720</td>
</tr>
<tr>
<td>Assessors’ travel&lt;sup&gt;b&lt;/sup&gt;</td>
<td>83</td>
<td>30</td>
<td>2,490</td>
</tr>
<tr>
<td>Assessors’ subsistence&lt;sup&gt;b&lt;/sup&gt;</td>
<td>83</td>
<td>35</td>
<td>2,905</td>
</tr>
<tr>
<td><strong>TOTAL&lt;sup&gt;c&lt;/sup&gt;</strong></td>
<td></td>
<td></td>
<td>30,115</td>
</tr>
</tbody>
</table>

**Yearly cost (total divided by 6)**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,019</td>
</tr>
</tbody>
</table>

**Notes**

a. Teaching is to be undertaken during the 5th and 6th parts of the course. Each of the 515 students is to be assessed four times. The fees for each assessment are assumed to be at the current university rate of K£12 per hour.

b. It is estimated that 83 assessor-days will be required to complete the work. The travel and subsistence estimates take into account the regional distribution of students.

c. It is assumed that the expenses of students will be negligible since the great majority are teachers who will most likely be assessed at their place of work.

**Table 11A.12 Yearly recurrent costs of examinations**

<table>
<thead>
<tr>
<th></th>
<th>Scripts</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7,210</td>
<td>1.00</td>
<td>7,210</td>
</tr>
<tr>
<td>Mailing</td>
<td>7,210</td>
<td>0.15</td>
<td>1,081</td>
</tr>
<tr>
<td>Annual examination&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3,605</td>
<td>1.00</td>
<td>3,605</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>11,896</td>
</tr>
</tbody>
</table>

**Notes**

a. For each of the seven units a student takes in a year two assignments are undertaken. Thus, the total number of scripts are arrived at by multiplying 515 students by 14.

b. In the end-of-year examination each of the seven units studied is examined through a paper. Thus, the total number of scripts is seven multiplied by 515 students.

**Table 11A.13 Students’ opportunity costs**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students</th>
<th>Hours</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study at home</td>
<td>515</td>
<td>490</td>
<td>0.5</td>
<td>126,175</td>
</tr>
<tr>
<td>On-campus sessions</td>
<td>515</td>
<td>168</td>
<td>0.5</td>
<td>43,260</td>
</tr>
<tr>
<td>Regional sessions</td>
<td>515</td>
<td>96</td>
<td>0.5</td>
<td>24,720</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>194,155</td>
</tr>
</tbody>
</table>
The Correspondence and Open Studies Institute (COSIT) is an institute of the University of Lagos, Nigeria, having been established in 1974 as a Correspondence and Open Studies Unit. The University of Lagos (UNILAG) itself was established in 1962. The University as a whole has some 13,000 regular students and well over 650 academic staff. There is, therefore, a substantial and high-quality academic and administrative set-up on which COSIT can depend in several ways. For instance, COSIT students are students of the University of Lagos except that they are non-residential. Their qualifications, moreover, are the same as the regular students since both sets of students—COSIT and regular—take the same or equivalent examinations.

In essence the objectives of COSIT are to bring university education to learners at home while, at the same time, enabling these learners to continue to provide their skills to the labour market. The existing fields of study—science teaching, business administration, accounting—all reflect national manpower shortages. One aim, which was set in 1975, concerns the provision of non-formal education in selected communities. As yet, financing difficulties have not allowed the pursuit of such an aim, although there are ideas for both markets and courses, for example, management of local government finance.

In 1975–76 there were approximately 300 students registered with COSIT. Now there are about 4,000. They come from virtually all the states of the federation. On account of the stringent entrance requirements—not to mention course requirements—students are mainly teachers and public servants, although there are employees of private sector organisations. The minimum age at entry is 25, while the age range extends to 50. Approximately one-third of those admitted are women.

COSIT students are not external students of the University of Lagos. They enjoy parity of status with the regular students. Nevertheless, it is recognised that students living several hundred kilometres from their university require various kinds of support from university teachers and from each other. Hence within the COSIT arrangement there is the concept of a nationwide network of outstations, each based within an existing institution of higher education.
Currently only seven are fully operational following the squeeze on university funding. In the past as many as 14 outstations existed. Just short of 65 per cent of all 1987–88 registered students are registered with the Lagos centre, a further nine per cent with the Ife centre, seven per cent with the Owerri centre, roughly six per cent at both Benin and Enugu, three per cent at Ilorin, and two per cent at each of the Zaria and Abeokuta centres. The work of the outstations will be described later in the chapter.

COSIT has its own Board of Studies, chaired by the Director, which undertakes policy formulation and supervision of its own affairs. It has three sections: an Academic planning and development section to evaluate and develop academic programmes, courses and materials; a Media section, which is responsible for production (broadly interpreted) of texts and radio output; and an Administrative section to handle correspondence with students, facilitate communication within the units of COSIT, and run the operation.

THE COURSES

Currently, there are four degree and post-degree courses on offer: BSc (Education in biology, chemistry, physics, mathematics); BSc (Business Administration); BSc (Accounting); and a two-year postgraduate diploma in education (PGDE) (Arts and Sciences). A fifth programme—a special entry preparatory programme (SEPP)—is meant for experienced but non-graduate science teachers. It precedes the BSc (Education) for those teachers who require it. Three faculties—Education, Science and Business Administration—are concerned with these five courses through preparation of course material, tutoring and examining. Through such involvement it is assured that the level of difficulty of the COSIT courses (or, as in the case of the SEPP, preparation for a degree course) is on a par with regular programmes.

The minimum duration of the courses is five years, or six in the case of BSc (Education) where a SEPP precedes the degree course proper. The normal maximum time for completion is eight years. The regular University of Lagos bachelor degrees are three or four years/six to eight semesters, designated sequentially Part I, Part II, Part III (and Part IV) courses. Courses carry ‘unit’ values which, according to regulations, must accrue to certain numbers of units passed at each part before proceeding to the next higher or before graduating. Each of the COSIT degree courses, that is, BSc (Education), BSc (Business Administration) and BSc (Accounting), consists of five parts: the regular course Part I is split into 1A and 1B taken over two years; Part II is again split between 2A and 2B while the final Part III is/should be taken in only one year.

Within the BSc (Education) course it is necessary to major in one of the four disciplines—biology, chemistry, physics and mathematics. As an example of the curriculum, a student who majors in chemistry will, in the first year of study (SEPP), take four compulsory courses in chemistry. In the second year, that is,
Part 1A, he or she takes seven compulsory courses, four of which are science-faculty courses, plus two education-faculty courses, plus one arts course—general African studies. To give another example, COSIT programme students doing a BSc (Accounting) have a curriculum of eight compulsory courses including four in the Department of Accounting, two in the Department of Business studies, and one each in the Departments of Finance and Computing.

Delivery modes

There are three modes of course delivery, in principle. These are: correspondence tuition; face-to-face contact; and radio broadcasts and narrowcasts (through recorded tapes).

Correspondence tuition

The main burden of the distance element of instruction is carried out through course texts, planned, produced and distributed by COSIT.

COSIT commissions course booklets for a fee from established academics, and moderates and edits these booklets before they are released. Many of the titles are reprinted without annual revisions being made. For at least two years (1986–87 and 1987–88) no new materials have been written.

The relationship between course units and course booklets is as follows: a course unit is the equivalent of approximately 25 one-hour lectures (or tutorials) or 25 three-hour laboratory practicals, or a combination of these. The content of a course unit is sub-divided into modules, each module being the equivalent of about three classroom hours of teaching. A course booklet contains three modules: hence, a course unit (of nine modules) is covered in three course booklets.

A written assignment is associated with each booklet. With the exception of the results of science practicals and performance on teaching practice, the assignments do not count towards either course or degree grades. In theory, they are used purely for feedback to the student. Supervisors at the local centres have a role in administering these assignments, as they do also in the laboratory practicals and teaching practice. However, for several years the formal marking of assignments by tutors has not occurred.

Face-to-face contact

There are three types of face-to-face contact:

- an induction course: before matriculation at the University of Lagos, all admitted to the course must attend a week’s residential course at the University
– vacation course: a residential six-week course in each year of study at the University during the vacation. For science students practical laboratory work takes place during this time. Not all students manage to attend all these courses
– study centre meetings: students are assigned to a study centre (or COSIT outstation) according to their location. At these centres there is one supervisor responsible for the organisation of each centre plus several tutors. Students attend their centre roughly once in three weeks on a Saturday for a period of approximately six hours.

As is suggested in the distribution of enrolments by centre, many students either prefer to or have (for reason of access) to register at the Lagos centre.

Broadcasting and narrowcasting

Radio broadcasts using the Federal Radio Corporation of Nigeria (FRCN) were conceived as supplementary material to the course booklets. Three 15-minute slots per week were at one time allocated. Currently these are non-operational for two main reasons. First, the coverage of FRCN is no longer nationwide since the advent of state broadcasting authorities. Eventually it is hoped that broadcasts produced by the FRCN will be rebroadcast by states at times suitable to local conditions. Second, following the programme of economic reforms instituted in 1986, the FRCN is run commercially. Previously COSIT was not charged for production or air time. Now COSIT cannot fund the renting of air time.

Narrowcasting is the production of cassette tapes for supply to each student. Again this service is temporarily suspended following the retirement of COSIT’s radio producer. Plans exist to revive the medium, which is seen as having advantages over broadcasting in being certain to be received by all those who have access to a cassette recorder.

STUDENTS AND GRADUATES

That COSIT is valued is evidenced by the volume of applicants—10,000 for the 1987–8 session—and the number of admissions—1,200 (see Table 12.1).

Registrations include students in all years of study. In the session 1987–8 there were more than 4,300 registered students who were ‘active’ (see Table 12.2). (There is no definitive information on which students are active since, until the 1987–8 session, there was no annual tuition fee (correspondence charge)).

Student records are entirely based on paper files. The records for graduations are in respect of total graduations in a particular year. This means that, apart from the initial year of graduation (1980–81 for the 1975–76 cohort), a
Nigeria

The graduation rate indicates the ratio of all those who have graduated from all previous cohorts to the cohort at entry five years earlier (see Table 12.3). The graduation rates do show considerable improvement. The first cohort to graduate in 1980–81 included students on the five-year BSc (Business

### Table 12.1 First admissions to all COSIT courses by year

<table>
<thead>
<tr>
<th>Year of admission</th>
<th>No. admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975–76</td>
<td>330</td>
</tr>
<tr>
<td>1976–77</td>
<td>568</td>
</tr>
<tr>
<td>1977–78</td>
<td>no admissions</td>
</tr>
<tr>
<td>1978–79</td>
<td>469</td>
</tr>
<tr>
<td>1979–80</td>
<td>653</td>
</tr>
<tr>
<td>1980–81</td>
<td>1,057</td>
</tr>
<tr>
<td>1981–82</td>
<td>592</td>
</tr>
<tr>
<td>1982–83</td>
<td>822</td>
</tr>
<tr>
<td>1983–84</td>
<td>872</td>
</tr>
<tr>
<td>1984–85</td>
<td>852</td>
</tr>
<tr>
<td>1985–86</td>
<td>680</td>
</tr>
<tr>
<td>1986–87</td>
<td>n/a</td>
</tr>
<tr>
<td>1987–88</td>
<td>1,200</td>
</tr>
</tbody>
</table>

**Source:** Head of Administrative Unit, COSIT, 25 March 1988

### Table 12.2 COSIT registered students by programme, March 1988

<table>
<thead>
<tr>
<th>Programme</th>
<th>Registered students</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPP</td>
<td>688</td>
<td>15.7</td>
</tr>
<tr>
<td>BSc (Education)</td>
<td>1,347</td>
<td>30.8</td>
</tr>
<tr>
<td>BSc (Business Administration)</td>
<td>1,143</td>
<td>26.2</td>
</tr>
<tr>
<td>BSc (Accounting)</td>
<td>854</td>
<td>19.6</td>
</tr>
<tr>
<td>PGDE (Arts and Science)</td>
<td>336</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>4,368</strong></td>
<td><strong>100.4</strong></td>
</tr>
</tbody>
</table>

### Table 12.3 Indicative graduation rates for COSIT programmes, 1980–81 to 1986–87

<table>
<thead>
<tr>
<th>Year of admission</th>
<th>No. being admitted</th>
<th>Year of graduation</th>
<th>No. of graduates</th>
<th>Graduation rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975–76</td>
<td>330</td>
<td>1980–81</td>
<td>29</td>
<td>8.8</td>
</tr>
<tr>
<td>1978–79</td>
<td>469</td>
<td>1983–84</td>
<td>27</td>
<td>5.8</td>
</tr>
<tr>
<td>1979–80</td>
<td>653</td>
<td>1984–85</td>
<td>85</td>
<td>13.0</td>
</tr>
<tr>
<td>1980–81</td>
<td>1,057</td>
<td>1985–86</td>
<td>260</td>
<td>24.6</td>
</tr>
<tr>
<td>1981–82</td>
<td>592</td>
<td>1986–87</td>
<td>323</td>
<td>54.6</td>
</tr>
</tbody>
</table>

graduation rate indicates the ratio of all those who have graduated from all previous cohorts to the cohort at entry five years earlier (see Table 12.3). The graduation rates do show considerable improvement. The first cohort to graduate in 1980–81 included students on the five-year BSc (Business
Continuing education administration) and BSc (Accounting) programmes. In the following and all subsequent years students graduating include those in the six-year BSc (Education) programme as well. However, the latter years’ figures may be considerably distorted by the inclusion of graduates from much earlier cohorts. It is only when we examine graduation rates for each course that a more satisfactory estimate can be made (see Table 12.4).

The graduation rate (apparent) of Business Administration students improved by a factor of four between the 1981–82 and 1982–83 cohorts. One can plausibly assume that a substantial number of the earlier cohort took six years instead of the minimum five years to complete their studies. The mean graduation rate is 35 per cent for the Business Administration programme. Taking the Business Administration and Accounting programmes together, the mean graduation rate for the 1980–81 and 1982–83 cohorts is 37 per cent. It is interesting to observe in passing that, at the January 1988 graduation ceremony when the 1986–87 students graduated, 202 COSIT students gained a BSc (Business Administration) and 100 gained a BSc (Accounting), whereas only 45 regular students graduated in Business Administration and 60 graduated in Accounting. However, the graduation rate of these two regular programmes amounted to 83 per cent. The earlier cohorts of BSc (Education) were quite small, though they have been increased dramatically so that at least 60 per cent of entrants in 1987–88 were on the BSc (Education)/SEPP course. The graduation rates of 54 per cent and 86 per cent are notably well up to those on the regular programme – estimated as 86 per cent for the 1983–84 cohort.

### COSTS AND FINANCE OF COSIT

As at March 1988, COSIT was in a state of transition. As in the other parts of the University, and the public sector as a whole for that matter, it suffered from the effects of the government’s structural adjustment programme, such as a cut in funding and the removal of free services. The removal of free broadcast time by the FRCN is a case in point. From July 1988, the start of the new financial year, COSIT was required to be self-accounting and to be a cost-covering semi-autonomous institute within UNILAG.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Admissions 1981/82 (1)</th>
<th>Admissions 1982/83 (2)</th>
<th>Graduates 1985/86 (1)</th>
<th>Graduates 1986/87 (2)</th>
<th>Graduation rate (%) (1)</th>
<th>Graduation rate (%) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc (Business Administration)</td>
<td>659</td>
<td>266</td>
<td>122</td>
<td>202</td>
<td>18.5</td>
<td>75.9</td>
</tr>
<tr>
<td>BSc (Accounting)</td>
<td>229</td>
<td>191</td>
<td>72</td>
<td>100</td>
<td>31.4</td>
<td>52.1</td>
</tr>
<tr>
<td>BSc (Education)</td>
<td>41</td>
<td>37</td>
<td>22</td>
<td>32</td>
<td>54.0</td>
<td>86.0</td>
</tr>
</tbody>
</table>
In order to meet the first requirement a member of the University’s bursary is reorganising the finance and budget systems of COSIT. For the latter requirement, a schedule of charges has been devised with the aim of generating sufficient revenue to cover the budgeted recurrent (and minor capital) expenditures.

**Data**

Two main sources of data on costs are used in the analyses which follow: figures supplied by the Head of the Accounting section of COSIT from the approved estimated expenditures from 1987–88; and schedules of charges, indicative costings for proposals and approved rates of payment for mainly part-time work, all supplied by the Heads of sections in COSIT. As far as possible, the methodology and sequence of analysis is consistent with Orivel (1987).

**Radio and tapes (narrowcasts)**

Before the impact of the structural adjustment programme, FRCN gave free three 15-minute slots of air time. Programmes were produced in COSIT which, at that time, had a producer on its staff. (He also produced the ‘narrowcasting’).

The costs indicated in Table 12.5 were not incurred in the 1987–8 year. They represent what it would cost to undertake the broadcasting component of the COSIT programme.

*Capital costs of radio*

The capital cost of broadcasting is not available. It is assumed that the recurrent rental charge of N800 per 45 minutes contains an element for capital. (It follows that there is no table showing yearly capital costs of production of radio).

*Diffusion of radio and by tapes*

Again, the broadcasting network not belonging to COSIT, there are not anticipated to be any charges for diffusion by FRCN beyond their ‘air rental charge’. However, if the FRCN supplies the programmes made for COSIT to the state broadcasting services it is conceivable that the states may charge COSIT an air time fee (see Table 12.6).

*Capital diffusion costs*

Estimates for these costs appear in Table 12.7. No costs are given for the capital cost of the broadcasting element on the grounds that only an arbitrary shadow price could be given for a service which, at present, does not exist;
Continuing education

and that the estimated air time rental fee from FRCN is assumed to contain an element of capital.

Reception of radio and narrowcasts

Recurrent costs are shown in Table 12.8. These are borne by the students either through an increment to their electricity bill or through purchase of batteries. The increment in total electricity charges is likely to be negligible, but the costs of batteries could be significant.

Capital costs

While it can be readily assumed that COSIT students possess radios, not all will have a cassette player or radio cassette. Since it is planned to make compulsory the purchase of cassette tapes, a personal recorder will be essential. Costs are shown in Table 12.9.

Printed materials: the course booklets

A direct result of the government’s structural adjustment programme has been a rationalisation of such facilities as printing within the University of Lagos.

---

Table 12.5 Yearly current costs of production of radio broadcasts (Currency: naira)

<table>
<thead>
<tr>
<th>Nature of input</th>
<th>Quantity</th>
<th>Standardised quantity</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>½</td>
<td>n/a</td>
<td>7,700</td>
</tr>
<tr>
<td>Part time</td>
<td>–</td>
<td>–</td>
<td>500</td>
</tr>
<tr>
<td>Support staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td></td>
<td>n/a</td>
<td>1,000</td>
</tr>
<tr>
<td>Part time</td>
<td></td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Non-salary recurrent costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses</td>
<td>n/a</td>
<td>n/a</td>
<td>41,600</td>
</tr>
<tr>
<td>Shadow prices</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Purchase of programmes from outside</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>n/a</td>
<td>n/a</td>
<td>50,800</td>
</tr>
</tbody>
</table>

Notes
a. Following the appointment of a senior producer an estimate is that about half his time will be devoted to broadcast production and the remainder to narrowcasting.
b. Part-time employment of script-writers is on a scale of N20 per script. Assuming 25 new scripts are produced in a year, a notional N500 is added for part-time professional fees.5
c. No additional support staff are envisaged for the revived broadcasting facility. A notional N1,000 is allowed against COSIT’s 1987–88 approved estimate for administrative and support services of N169,464.
d. Commercial air time is estimated as N800 per week and N41,600 per year.
The COSIT printing facilities, excluding graphics and compositing, were taken over by the University of Lagos Press. The administrative and financial aspects of the transfer were rushed and so far are incomplete. Whereas formerly the employees of the print facility were directly under COSIT, and, therefore, COSIT staff could decide on priority for various print-runs, at present COSIT jobs must take their turn with other University of Lagos Press work. The machinery used was purchased around 1977–78 and is coming near the end of its life as evidenced by an increasing rate of breakdowns. The present, and hopefully, temporary arrangement between the University of Lagos Press and COSIT is that COSIT supplies the paper and printer’s ink for

---

**Notes**

a. Assuming state broadcasting services charge a quarter of the FRCN rate and that 12 states participate (eight are already covered by outstations), there is an anticipated diffusion cost of N12 × 10,400 = N124,800.

b. See notes (a), (b) and (c) in Table 12.5.

c. The observed expenses for diffusion and duplication of tapes are as follows:

1. Cost of recording four programmes per week at N1,200 per week, throughout one year
   
   2. Master tapes: four tapes per week at N60 each
   
   3. Cassettes for student use at N10 each assuming 5,000 students
   
   4. Dubbing cost of N20 per programme
   
   5. Other

   Total approx. N270,800

   Items 3 and 4 vary with the number of students while items 1 and 2 vary with the number of programmes

---

**Table 12.6 Yearly recurrent costs of diffusion of radio broadcasts and narrowcasts (Currency: naira)**

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Full time equivalent</th>
<th>Yearly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(broadcasting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional staff</td>
<td>Full time</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Support staff</td>
<td>Part time</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Non-salary recurrent costs</td>
<td>Full time</td>
<td>½</td>
<td>7,700</td>
</tr>
<tr>
<td></td>
<td>Part time</td>
<td>½</td>
<td>1,000</td>
</tr>
<tr>
<td>Variable costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(duplication, circulation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional staff</td>
<td>Full time</td>
<td>½</td>
<td>1,000</td>
</tr>
<tr>
<td>Support staff</td>
<td>Part time</td>
<td>½</td>
<td>1,000</td>
</tr>
<tr>
<td>Non-salary recurrent costs</td>
<td>Full time</td>
<td>½</td>
<td>7,700</td>
</tr>
<tr>
<td></td>
<td>Part time</td>
<td>½</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>Observed expenses</td>
<td>Shadow prices&lt;sup&gt;a&lt;/sup&gt; (if necessary)</td>
<td>124,800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>404,800</td>
</tr>
</tbody>
</table>
printing, which is carried out without charge to COSIT in exchange for the use of the latter’s machines.

_Yearly recurrent costs of printing_

Owing to uncertainties over funding no new course booklets were being produced in 1987–88. The budgeted figure of N26,000 is therefore likely to remain unspent. However, in a normal year a sum of that order would have been spent and hence the approved expenditure figure is used in Table 12.10.

_Capital costs of print production_

The typing of drafts of new units, their editing and moderation involves only a few copies being produced using stencilling machines and photocopiers. The marginal capital use of existing machines is negligible, so no capital cost needs to be shown for print production.

_Recurrent costs of duplicating printed booklets_

Recurrent costs are shown in Table 12.11. Given the anomalous status of the present COSIT print set-up, its machines being taken over by the University
of Lagos Press, and most of its staff being taken over, it seems justifiable to treat the budget time of printing of course text materials as outside printing here.

**Yearly capital costs of duplicating and distribution**

To obtain a realistic estimate of the capital cost of printing it is necessary either to assume COSIT owned its own press or that it actually paid an economic rent to the University of Lagos Press. Costs appear in Table 12.12.

---

**Table 12.8 Yearly recurrent reception costs of radio and narrowcast (Currency: naira)**

<table>
<thead>
<tr>
<th>Nature of costs</th>
<th>Yearly expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong> Case of individual reception, at home (cost per listener)</td>
<td></td>
</tr>
<tr>
<td>Batteries(^a)/electricity</td>
<td>36</td>
</tr>
<tr>
<td>Foregone earnings(^b)</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>–</td>
</tr>
<tr>
<td><strong>II</strong> Case of collective reception: firm, church, community (cost per standard group of students)</td>
<td></td>
</tr>
<tr>
<td>Batteries/electricity</td>
<td>n/a</td>
</tr>
<tr>
<td>Monitor</td>
<td>n/a</td>
</tr>
<tr>
<td>Operation of the room</td>
<td>n/a</td>
</tr>
<tr>
<td>Salaries of students</td>
<td>n/a</td>
</tr>
<tr>
<td>Other</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Notes**

a. Assuming 12 changes of batteries (two per set) per year and reckoning on N1.50 per battery, we have an estimate of N36 per year for those listeners without mains power.

b. The *raison d'être* of COSIT is to create or enhance professional skills in areas of national need without removing those being upgraded from the labour force. While there is a strong case for including in the cost estimates the opportunity cost of students’ time while on the annual six-week residential course and during the induction week, we can discount the non-working time devoted to listening to broadcasts or tapes (see Table 12.11).

---

**Table 12.9 Yearly capital costs of reception of narrowcasts (Currency: naira)**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Lifetime</th>
<th>Annualised costs 0%</th>
<th>7.5%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassette-recorder(^c)</td>
<td>5</td>
<td>50</td>
<td>62</td>
<td>75</td>
</tr>
</tbody>
</table>

**Note**

a. It is assumed that a suitable robust tape recorder can be purchased for N250.
Continuing education

In the 1987–88 session substantial weight was being given to face-to-face tutoring bearing in mind the (temporary) cessation of radio broadcasts and narrowcasts and the non-availability of upwards of half the course units. In the COSIT scheme there is a considerable reliance on the face-to-face contact

Table 12.10 Yearly recurrent costs of production of printed materials (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Full-time equivalent</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent staff</td>
<td>2</td>
<td>21,600</td>
</tr>
<tr>
<td>Consultants (outside authors or editing specialists)</td>
<td>10 units</td>
<td>26,000</td>
</tr>
<tr>
<td>Support staff</td>
<td>1 typist, graphic artist and compositor</td>
<td>17,000</td>
</tr>
<tr>
<td>Non-salary current costs</td>
<td></td>
<td>500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>65,100</strong></td>
</tr>
</tbody>
</table>

Notes
a. A notional allocation of the equivalent of two full-time members of staff, that is, one-third of the total teaching and research staff budget item, not counting the Director, is given to production.
b. Honoraria are paid to non-COSIT faculty members—all members of the University of Lagos staff—to plan, write and moderate course texts. A single unit of nine modules is costed as N150 for planning, N2,000 for writing and N320 for moderating—a total of N2,470 per unit.
c. The equivalent of a full-time typist is notionally added to production. (There are eight typists on the establishment of COSIT). A compositor and a graphic artist are included here.
d. One-tenth of the printing, stationery and materials budget item is allocated to production.

Table 12.11 Yearly recurrent costs of duplication and distribution of printed materials (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent staff</td>
<td>Full-time equivalent</td>
<td>0</td>
</tr>
<tr>
<td>Maintenance of equipment</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Supplies</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Outside printing by University of Lagos Press</td>
<td>100% of year needs</td>
<td>75,000</td>
</tr>
<tr>
<td>Distribution costs*a</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>75,000</strong></td>
</tr>
</tbody>
</table>

Note
a. Distribution of course texts to the seven centres outside Lagos is no longer done using the COSIT courier service. Students collect the available booklets when in UNILAG for induction and vacation courses.

Face-to-face tutoring

In the 1987–88 session substantial weight was being given to face-to-face tutoring bearing in mind the (temporary) cessation of radio broadcasts and narrowcasts and the non-availability of upwards of half the course units. In the COSIT scheme there is a considerable reliance on the face-to-face contact
as is evident in the induction week meant to revive study skills and introduce students to University staff and facilities, in the six-week study schools in each year of study, and in the arrangements for contact with supervisors in the study centres on a regular basis.

The full-time COSIT staff are involved in the induction week and study schools, and counsel students who refer themselves. It is estimated that one-sixth of the total teaching and research staff budget item, not counting the Director, can be allocated to these face-to-face activities, viz. N10,800. However, the majority of tutoring is done by regular faculty staff of UNILAG. Study centres are supervised by hired staff at other institutions of higher education as well as by those at UNILAG.

A scale of tutoring honoraria operates:

1. Vacation course tutoring and laboratory practicals N20 per hour
2. Tutoring at study centres for 4 to 6 hours on Saturdays N20 per hour
3. Study centre meeting N30 per meeting
4. Induction and vacation course supervisor N100 per week
5. Induction and vacation subject co-ordination N10 per day
6. Teaching practice co-ordination of programme N100 per year
7 Teaching practice supervision N50 per week
8 Demonstrator N10 per hour

Details of the volumes of these various activities are not available. The approved expenditure for the entire correspondence tutoring fees: induction and vacation item is N342,000. (The Accounting Officer in COSIT expected the actual total to overshoot the approved expenditure. Through using virement of the probably unused course writing fees the overshoot should be contained).

A crude estimate of the staffing of COSIT courses in full-time equivalent (FTE) numbers can be derived by assuming that the entire tutoring fees item represents additional salary payments which could be given to additional staff. (This is not a very bold assumption if the tutoring fees item does not contain significant amounts of payment for marking assignments, the latter usually being treated as an element in the job of a University teacher for which no extra payment is due). In other words, one hour of paid tutoring contains within it the implicit assumption that the tutor will prepare and read assignments in his or her own time, without further reward. With the modal salary of a lecturer being N10,000, the tutoring fees item of N342,000 implies 342,000 divided by 10,000 = 34 FTE staff. There is additionally a single FTE from the permanent staff.

A notional one typist and one clerical officer plus a one-half share of administrative personnel are allocated to the support of face-to-face activities in COSIT. An estimated N10,000 is allowed against this item. Students had to meet costs for transport and subsistence for the induction course, the vacation course and for contact with supervisors.

One thousand two hundred students attend the induction course. No data exist on distances travelled or expenditures incurred. Many use private transport, while others travel by public transport. Since only 35 per cent of all students are supervised from study centres outside Lagos, it can be assumed that those students will have much higher transport costs than the 65 per cent registered at the Lagos local centre (most but not all of whom can be taken to reside within Lagos state). If we assign a N50 return journey for those 35 per cent (420) outside Lagos and N10 for the remainder, we can estimate total transport costs as N28,800. Additional living costs beyond those which would have been incurred had they stayed at home could be N5 per day, hence N42,000 in all. This gives a total of N70,800.

Using the same assumptions we can estimate student expenses in attending the six-week vacation course. However, not all students manage to attend the vacation courses, hence the totals are reduced to 80 per cent of their value.

\[
\begin{align*}
35 \text{ per cent of all students} & \times (1,400) \times N50 \times 0.8 = N56,000 \\
+ 65 \text{ per cent of all students} & \times (2,600) \times N10 \times 0.8 = N20,800 \\
+ \text{subsistence costs at N5 per day for 70 days} & \times 0.8 = N1,120,000 \\
\end{align*}
\]

One-day contact with supervisors every three weeks on average during the
academic year will perhaps require ten visits per student. On the basis of N5
per visit for transport, we can estimate $4,000 \times 10 \times 5 = N200,000$.

The total of these three elements is $70,800 + 1,196,800 + 200,000 = N1,468,000$ approx., as shown in Table 12.13.

UNILAG raises a charge of N3 per night from COSIT students on induction
and vacation courses. Such a charge covers only additional maintenance to
the halls of residence with students bringing their own bedding with them.

\[
\begin{align*}
\text{Induction course } 1,200 \times 7 \times 3 &= N25,200 \\
\text{Vacation courses } 4,000 \times 70 \times 3 \times 0.8 &= N672,000 \\
\text{TOTAL} 
\end{align*}
\]

There are several charges directly allocated to face-to-face instruction:

- Use of science laboratory charges N30,000
- Teaching materials N750
- Printing stationery (a one-third share of COSIT’s approved figure) N2,000
- TOTAL N32,750

The opportunity cost of students’ time as they attend induction and vacation
courses ought to be estimated. Study leave is doubtless required from employers
who lose the services of their employees for the period. There is then either
lower output or additional expenditure through the employer raising manning
levels to allow for absence of employees on study leave. Some students are
known to give up some earnings. The choice of appropriate base-line salary is
problematic. Data on earnings of students are not available. Impressions are
that possibly half the student body belongs to the senior cadre—those on top
government salary scales and, for the private sector, beyond that. The Business
Administration and Accounting students seem to be drawn from the high
earners—say N20,000 per year on average. The majority of teachers are on
grade levels ‘G 7–8’ (on a 16-point government grading scale) and earn about
N3,500, while those on the PGDE are more senior teachers with promoted posts
and are of graduate status on grade levels ‘G 12–14’, earning N10,000. As a
first approximation a mean of N10,000 is used for the purposes of estimating
the opportunity cost of time of the average COSIT student.

The opportunity costs of the induction course can be estimated:

\[
\begin{align*}
\text{students } \times \text{ proportion of annual salary } \times \text{ average salary } &= \\
1,200 \times 1/52 \times 10,000 &= N230,000 \\
\end{align*}
\]

and of the vacation course:

\[
\begin{align*}
\text{students } \times \text{ proportion of annual salary } \times \text{ average salary } \times 0.8 &= \\
4,000 \times 6/52 \times 10,000 \times 0.8 &= N3,692,300 \\
\end{align*}
\]
Continuing education

Total opportunity costs = income foregone = N3,923,100. (Note that the vacation course is attended by an estimated 80 per cent of those registered, hence the factor of 0.8 to reduce the values of the opportunity costs).

These calculations make it possible to draw up Table 12.13.

### Table 12.13 Yearly recurrent costs of face-to-face activities (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers or tutors</td>
<td>35 full-time equivalent</td>
<td>352,800</td>
</tr>
<tr>
<td>Other staff</td>
<td>2.5 full-time equivalent</td>
<td>10,000</td>
</tr>
<tr>
<td>Transport and subsistence (students)</td>
<td>n/a</td>
<td>1,468,000</td>
</tr>
<tr>
<td>Non-salary costs</td>
<td>n/a</td>
<td>729,950</td>
</tr>
<tr>
<td>Income foregone</td>
<td>n/a</td>
<td>3,923,100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>6,483,850</strong></td>
</tr>
</tbody>
</table>

### Table 12.14 Yearly capital costs of face-to-face activities (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Annualised costs</th>
<th>Shadow price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Buildings (Central and Decentralised)</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>Equipment*</td>
<td>10,500</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>40,500</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note*

a. No data are available on equipment used in the face-to-face teaching. Possibly the recurrent charge for laboratory materials contains an element for use of capital stock of laboratory equipment. In the BSc (Accounting) and BSc (Business Administration) use of equipment is not prominent in the curriculum.

Total opportunity costs = income foregone = N3,923,100. (Note that the vacation course is attended by an estimated 80 per cent of those registered, hence the factor of 0.8 to reduce the values of the opportunity costs).

These calculations make it possible to draw up Table 12.13.

**Capital costs of face-to-face tuition**

Currently, the University of Lagos does not charge for rental by COSIT of its buildings—except for a nominal fee to students for residence and a charge for laboratory materials, and both these are treated here as recurrent items. It is necessary to estimate shadow prices for buildings and equipment. As a crude approximation we can use the fact that at the outstations a charge of N1,500 is levied by the respective institutions of higher education for the use of premises for one day per week throughout the academic year.

Moreover, this facility is used on average by approximately 200 students. Space requirements for 4,000 students will be 4,000/200 = 20 times larger
Table 12.15 Yearly recurrent costs of assignment correspondence (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Full-time equivalent</td>
<td>0</td>
</tr>
<tr>
<td>Support staff</td>
<td>Full-time equivalent</td>
<td>n/a</td>
</tr>
<tr>
<td>Mail&lt;sup&gt;b&lt;/sup&gt;</td>
<td>8,000 number of exchanges per student-year</td>
<td>2,000</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>2,000</strong></td>
</tr>
</tbody>
</table>

**Notes**

a. In principle students could have as many as 20 assignments per year. As reported, marking of assignments is one element of COSIT’s work which has been neglected in recent years. Certainly the costs of operating the system in terms of fees alone, not to mention management activities, would be large. For instance, the almost 2,000 registered BSc (Business Administration) and BSc (Accounting) students could submit up to 42,000 assignments requiring N105,000 in fees for markers. In the present financial climate a return to paid marking seems unlikely.

b. The Head of COSIT administration estimates 40 items of correspondence from students per day. Assuming 200 working days per year this amounts to 8,000 exchanges per year. The cost of this operation is not fully absorbed: the filing of items in student files is left partially undone owing to lack of staff. No separate item of expenditure for postage exists, hence a notional N2,000 is included here. Staff time for dealing with correspondence is subsumed under administrative/central costs.

and could be estimated at \(20 \times 1,500 = N30,000\) per year (see Table 12.14). A further charge against capital costs at the outstations is obtained by accumulating the standard N1,500 at seven institutions = N10,500.

**Costs of assignments**

As mentioned earlier, assignments, for formative assessment only, number three for each course unit—one for each booklet. Assessment of these scripts is in principle done by part-time staff and supervisors paid at the rate of N2.50 per assignment. However, assignments were no longer marked in any systematic way at the time of the study. And little or no money was available for rewarding marking. See Table 12.15.

**Administrative and other central costs**

There are two bearers of administrative costs: COSIT itself and the University of Lagos. A minor bearer of administrative costs is the School of Postgraduate Studies. Costs are shown in Table 12.16.

**Capital costs of administrative and other central facilities**

COSIT occupies one floor of the Arts Faculty building which is now ten years old and cost N3.2 million to build. The entire building could have a lifetime of 50 years. At most, COSIT occupies one-twelfth of the building. We can,
Table 12.16 Yearly recurrent costs of administrative and other central costs (Currency: naira)

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Yearly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional staff*</td>
<td>4 full-time equivalent</td>
<td>56,000</td>
</tr>
<tr>
<td>Support staff*</td>
<td>29 full-time equivalent</td>
<td>141,500</td>
</tr>
<tr>
<td>Office supplies*</td>
<td>n/a</td>
<td>8,100</td>
</tr>
<tr>
<td>Documentation, books and journals*</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Water, electricity, telephone and power*</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Other running costs*</td>
<td>n/a</td>
<td>481,800</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td>687,400</td>
</tr>
</tbody>
</table>

**Notes**

a. COSIT has seven teaching and research staff. In Table 12.10, two FTEs were assigned to production activities, and in Table 12.13 one FTE to face-to-face tutoring: hence there are four FTEs for administration.

b. There are 19.5 FTE senior support staff and a further 16 FTE junior staff. In Tables 12.5, 12.10 and 12.13 there are notional estimates of costs incurred in the form of support staff for the various activities covered by those tables. Hence, there are 29.5 FTE support staff for administration.

c. Only minor amounts are budgeted and approved under ‘Office supplies and documentation, books, journals’. These are aggregated as N8,100.

d. As yet, utilities are not charged directly to COSIT and therefore must be included under other running costs. This represents mainly an apportionment of University overheads according to the numbers of COSIT students (suitably converted in FTE students) to all UNILAG students.

e. Share of COSIT in overhead UNILAG costs. For the purpose of estimating an appropriate share of overheads to be allocated to COSIT we can bear in mind that a COSIT student is on campus for only six weeks in an academic session. It is only during that time that he or she consumes university resources.

The administration of induction and matriculation and continued registration is borne largely in COSIT itself. With an academic year of approximately 30 weeks, we can assume that each COSIT student counts as 6/30 or one-fifth of a FTE student. Since there are currently 4,000 COSIT students, of whom it is estimated 80 per cent attend the vacation courses, these are equivalent, for the purpose of allocating overheads to 4,000 × 0.8 × 0.2, that is, 640 students. COSIT students use the facilities—for example, the University library—at times other than during induction and vacation courses if they are able to visit UNILAG. However, it is not possible to estimate the cost of this unprogrammed use of facilities.

The approved Recurrent estimates 1987–88 of the University of Lagos give a total expenditure of N30.474 million, and include 9.196 million for administrative support—consisting of the Vice-chancellor’s office, registry, bursary, works, health services, and so on. Total regular students number 13,000 and COSIT FTEs are estimated as 640, therefore each students consumes

\[
N9,196,000 = N670 \text{ approx.}
\]

Since there are 640 FTEs in COSIT it follows that the estimated overheads are N640 × 670 = N428,800.

In 1987–88 there were PGDE students who were partly the administrative responsibility of the School of Postgraduate Studies. Total expenditure of the PG School in 1987–88 was approved at N791,600. Since there were some 1,000 postgraduate students registered, we can allocate a just proportion of the total spending to the PGDE COSIT students. Again COSIT students count as one-fifth FTE, that is, there are only 336 × 0.2 = 67 of them in FTE terms. With approximately 1,000 postgraduate students, the cost per student year of the PG School is N791. We can allocate N67 × 791 or N53,000 as the share of COSIT postgraduates in total administrative and central costs borne by the PG School.

The following is a summary of other running costs:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>University overheads</td>
<td>N428,800</td>
</tr>
<tr>
<td>PG School overheads</td>
<td>N53,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>N481,800</td>
</tr>
</tbody>
</table>
therefore, allocate one-twelfth of annualised costs, over 50 years, of the entire building. The undiscounted annualised sum for the building as a whole is N64,000, while at discount rates of 7.5 per cent and 15 per cent the annualised values amount to N246,400 and N480,000 respectively. Only one-twelfth of these values are assigned to COSIT in Table 12.17.

Number of instructional materials

It was earlier stated that at the time of the study there had been no production of radio programmes, of cassette tapes or of new printed materials. Moreover, the formal paid marking of assignments had been abandoned.

Table 12.18 indicates that roughly half a million pages of course booklets have been duplicated—this estimate is based on actual number of titles (16) and copies (7,000) duplicated in the period May 1987 to March 1988 and assuming an average booklet size of 70 pages.

Analysis of costs and finance

COSIT now operates so much more like an institution which offers part-time preparation for degrees than a truly ‘open’ learning institute that it is inappropriate to pursue the question of COSIT’s impact on a wider public. As

---

**Table 12.17 Yearly capital costs of administrative and other central costs (Currency: naira)**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Annualised costs 0%</th>
<th>7.5%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>5,350</td>
<td>20,500</td>
<td>40,000</td>
</tr>
<tr>
<td>Equipment</td>
<td>20,000</td>
<td>23,800</td>
<td>28,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>23,350</td>
<td>44,400</td>
<td>68,000</td>
</tr>
</tbody>
</table>

**Table 12.18 Production of instructional materials, 1987–88**

<table>
<thead>
<tr>
<th>Medium</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV programmes</td>
<td>Hours</td>
<td>0</td>
</tr>
<tr>
<td>Radio programmes</td>
<td>Hours</td>
<td>0</td>
</tr>
<tr>
<td>Correspondence assignments</td>
<td>Corrected exercises</td>
<td>0</td>
</tr>
<tr>
<td>TV videocassettes</td>
<td>Cassettes made</td>
<td>0</td>
</tr>
<tr>
<td>Audio-cassettes</td>
<td>Cassettes made</td>
<td>0</td>
</tr>
<tr>
<td>Printed materials</td>
<td>Course booklets produced</td>
<td>572,000</td>
</tr>
</tbody>
</table>
part of a general restructuring of the cycles of education, regular degree programmes are now of four parts or years. New entrants to the University since the early 1980s have increasingly done an initial foundation year as a substitute for having no ‘A’ levels. (They leave secondary school, with its 3 + 3 structure with a West African School Certificate and take the Joint Admission and Matriculation Board (JAMB) examination). Direct entry to Part II of regular programmes by those with ‘A’ levels continues as the ‘A’ level entry is being phased out. A COSIT student takes a minimum of six years (SEPP and BSc) if in education and five years if BSc (Business Administration or Accounting). In practice it seems safe to assume that COSIT students take between six and eight years of study. Hence, for the period of transition in which we report, each COSIT student is, to a first approximation, equivalent to 0.5 FTE student.

We can estimate the unit cost of a radio programme (or equivalent cassette) by recalling that in the current session no activity took place, but assuming that 25 radio scripts were made (and recorded on tape). Then:

\[
\text{Production cost}^6 \ 	ext{of one script} = \frac{N50,800 + 0}{25} = N2,032.
\]

\[
\text{Diffusion cost of broadcasts and narrowcasts} = \frac{N403,800 + 900}{25} = N16,188
\]

(For this sum each student would receive one recorded tape as well). Reception costs of cassette narrowcasts = N36 per student.

In the present COSIT set-up it is as well to ignore all these ‘shadow’ estimates since the inputs they represent do not contribute to output.

It is now possible to estimate the total cost function of COSIT.

1 Fixed costs = Table 12.16 + Table 12.17 (administrative costs) 1987–88
FC = N687,400 + N68,000
FC = N755,400 (1988 US$194,082)^7

2 Variable costs
(i) Duplication and distribution of course booklets = Table 12.11 + Table 12.12
= N75,000 + N7,000
= N82,000

(ii) Face-to-face costs including income foregone and students’ private costs^8
= Table 12.13 + Table 12.14
= N6,524,350

including students’ private costs, but excluding income foregone
= N2,601,250

excluding income foregone and student expenses of travel and so on
= N1,125,500

(iii) Correspondence costs = Table 12.15
= N2,000
(iv) Total variable costs (VN)

a. including income foregone and students’ private costs  
   = N6,608,350  
   (1988 US$1,697,864)

b. including students’ private costs, but excluding income foregone  
   = N2,685,250 ($689,913)

c. excluding income foregone and student expenses of travel and so on  
   = N1,209,500 ($310,753)

\[ VN_{a,b,c} = \frac{\text{Total variable costs}}{\text{No. of FTE students}} \]

\[ VN_a = \frac{N6,608,350}{2,000} = N3,304 \]

\[ VN_b = \frac{N2,685,250}{2,000} = N1,343 \]

\[ VN_c = \frac{1,209,500}{2,000} = N605 \]

where a, b, c are defined as in iv(a), iv(b) and iv(c) above

3 Total costs = fixed costs + variable costs × FTE students

\[ TC_a = N755,400 + (3,304 \times 2,000) = 7,363,400 ($ 1,891,856) \]

\[ TC_b = N755,400 + (1,343 \times 2,000) = N3,441,400 ($ 884,189) \]

\[ TC_c = N755,400 + (605 + 2,000) = N1,965,400 ($ 504,964) \]

where the three estimates of variable costs are defined as in iv(a), iv(b) and iv(c) above

4 Average costs, converting the estimated active enrolments of 4,000 to 2,000 FTEs

\[ AC_a = \frac{TC_a}{2,000} = N3,682 ($ 946) \]

\[ AC_b = \frac{TC_b}{2,000} = N1,721 ($ 442) \]

\[ AC_c = \frac{TC_c}{2,000} = N983 ($ 253) \]

5 Graduate cost = average cost × average number of years to produce a graduate  
   = \( AC \times Y \) where \( Y \) is taken as four full-time years

Thus, we can show graduate costs as in Table 12.19.

We can examine an alternative method of costing a COSIT graduate. If we assume 4,000 students in the part-time mode of attendance typified by COSIT students:

\[ V = \frac{\text{Total variable costs}}{\text{COSIT enrolment}} \]
Continuing education

We have three estimates of $V$:

$V_a$ = All variable costs including private costs and income foregone

$V_b$ = Variable costs less income foregone

$V_c$ = Variable costs less income foregone and private costs

This last is nearest to the costs that would appear in accounts.

\[
V_a = \frac{N6,608,350}{4,000} = N1,652
\]

\[
V_b = \frac{N2,685,250}{4,000} = N671
\]

\[
V_c = \frac{N1,209,500}{4,000} = N302
\]

Total costs = fixed costs + (variable costs × FTE students)

\[
TC_a = N755,400 + (N1,646 × 4,000) = 7,363,400 ($1,891,856)
\]

\[
TC_b = N3,439,400 ($883,675)
\]

\[
TC_c = N1,963,400 ($504,450)
\]

These results are summarised in Table 12.20.

As would be expected, the results of the average cost of a graduate (unadjusted for failure) calculated by two methods (Tables 12.19 and 12.20)

### Table 12.19 Graduate costs (Currency: naira)

<table>
<thead>
<tr>
<th>Average cost</th>
<th>$AC_a$</th>
<th>$AC_b$</th>
<th>$AC_c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of full course = 4</td>
<td>14,728 ($3,784)</td>
<td>6,884 ($1,769)</td>
<td>3,392 ($871)</td>
</tr>
</tbody>
</table>

### Table 12.20 Graduate costs on various assumptions (Currency: naira)

<table>
<thead>
<tr>
<th>Years of study</th>
<th>Average cost $AC_a$</th>
<th>1987–88 costs</th>
<th>Average cost $AC_c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>9,205</td>
<td>4,300</td>
<td>2,455</td>
</tr>
<tr>
<td>6</td>
<td>11,046</td>
<td>5,160</td>
<td>2,946</td>
</tr>
<tr>
<td>7</td>
<td>12,887</td>
<td>6,020</td>
<td>3,437</td>
</tr>
<tr>
<td>8</td>
<td>14,728</td>
<td>6,880</td>
<td>3,928</td>
</tr>
</tbody>
</table>
and the alternative method (Table 12.21) are the same where the average years of study in Table 12.20 is eight. It has to be recalled that for Table 12.19 the assumption was made that the COSIT student took eight years to complete a four-year course (or six years to complete the one-time three-year full-time course). Hence it was necessary to convert the 4,000 active enrolments to 2,000 FTE students. What Table 12.20 points to is that cost savings are possible where the number of years to completion for COSIT students is less than eight years. For instance, the average cost of producing a graduate of COSIT who gets by in five years is N9,205 if income foregone and private costs are included as opposed to N14,728, again with income foregone and private costs, if eight years are taken. Education students on the BSc programme do anyway take six years’ minimum.

### Adjusted graduate costs

Because all students who begin courses do not finish them there is always a wastage of resources involved in the drop-outs and failures. (Repeaters are taken care of in the above discussion of years to completion).

Graduation rates of COSIT students were dealt with earlier in the chapter. Unfortunately the data in Table 12.4 are not very full in that they cover only two cohorts of three of the COSIT programmes. In Table 12.21 we explore the sensitivity of average graduate costs to various assumptions on graduation rates.

From Table 12.21 we can observe that:

1. for the BEd (Sc) programme which had a graduation rate of upwards of 80
per cent for the 1982–83 cohort the adjusted average cost of a graduate assuming the minimum of six years to completion would be N3,683 ($946)
2 for Business Administration and Accounting programmes, which have a combined graduation rate of 35 per cent approximately, the adjusted average cost of a graduate, assuming the minimum of five years to completion, would be N7,014 ($1802)
3 if eight years are taken on average to complete the degree, and the graduation rate is 50 per cent, the adjusted average cost of a graduate is N7,856 ($2018).

Finally, if we include in the average cost of the graduate the income foregone and the private costs incurred, that is, AC in Table 12.20, then for a graduation rate of 35 per cent the adjusted average cost of a graduate becomes N26,300, assuming the minimum of five years to completion, and rises to N31,560 if six years are taken to complete, assuming the same graduation rate.

Finance of COSIT

It needs to be stated that until the 1987–8 academic year, no significant charges were directly levied on COSIT students. There is now a complex set of charges which vary according to whether the student is a new entrant or re-registration; the subjects studied; and whether postgraduate or not. At the top end of the scale are charges of more than N800 for a PGDE first admission. At the lower end of the scale are charges for a second or subsequent year student doing BSc (Business Administration) or BSc (Accounting) who pays N200 approximately. Elements in the schedule of charges cover the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Item</th>
<th>Charge (naira)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGDE (Sc)</td>
<td>Tuition fee for two years</td>
<td>350</td>
</tr>
<tr>
<td>PGDE (Arts)</td>
<td>Tuition fee for two years</td>
<td>250</td>
</tr>
<tr>
<td>All students</td>
<td>Annual correspondence fee</td>
<td>100</td>
</tr>
<tr>
<td>Education</td>
<td>Annual teaching practice supervision</td>
<td>50</td>
</tr>
<tr>
<td>Science</td>
<td>Annual laboratory charges</td>
<td>30</td>
</tr>
<tr>
<td>All</td>
<td>Annual identity card</td>
<td>1</td>
</tr>
<tr>
<td>All</td>
<td>Annual examination charges</td>
<td>50</td>
</tr>
<tr>
<td>All</td>
<td>Initial acceptance fees</td>
<td>30</td>
</tr>
<tr>
<td>Final</td>
<td>year Project charges</td>
<td>50</td>
</tr>
<tr>
<td>All</td>
<td>Book deposit</td>
<td>250</td>
</tr>
</tbody>
</table>

The book deposit of N250 could cover two or three sessions depending on the availability of course booklets: for instance in Business Administration only 20 per cent of the course booklets are written. Sources of funding are summarised in Table 12.22.
COSIT and regular programme compared

We can now compare unit costs of the COSIT and regular programmes in the Faculty of Education and the Departments of Accountancy and Business Administration at the University of Lagos.

The relevant unit costs of student output were calculated for the Faculty of Education and the Departments of Accounting and Business Administration, all being units and departments of the University where COSIT offers degree courses. The necessary unit costs of student output were calculated from the total expenditure of each department/unit and the University-wide central administrative expenditure.

From the budget estimates for the 1987–88 academic year, the university central administrative expenditure is N9,195,656, while the sums of N1,041,764 and N446,269 represent the estimated expenditures for the Faculty of Education and the Departments of Accounting and Business Administration respectively. In calculating the overall unit cost per student, 1987–88 academic years were used. In the Faculty of Education, the student enrolment figures for the 1983–84 and the 1986–87 academic years were used to calculate the graduation rate, while the
enrolment figures for the 1983–84 and 1986–87 academic years were used for the corresponding rate in Accounting and Business Administration.

For the 1987–88 academic year regular student enrolment in the Faculty of Education is 1,449 while the figure in the Departments of Accounting and Business Administration is 547 and that of the entire university is approximately 13,000. In 1987–88, 255 regular students graduated in the Faculty of Education while, in 1986–87, 110 regular students graduated in Accounting and Business Administration. These were out of the 300 who enrolled in Education and the 133 who enrolled in Accounting and Business Administration in the 1983–84 academic year. These give graduation rates of 85 per cent in Education and 82.7 per cent in Accounting and Business Administration. All the relevant unit costs as defined are shown in Table 12.23.

### Cost comparisons

The costs in Table 12.23 are straight recurrent costs without any allowance for capital consumption or private costs. They measure the expenditure shown

---

**Table 12.23** Unit costs of student output in the Faculty of Education and the Departments of Accounting and Business Administration, UNILAG, 1987–88

<table>
<thead>
<tr>
<th>Unit costs</th>
<th>Faculty of Education</th>
<th>Departments of Accounting and Business Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_T$</td>
<td>1,426</td>
<td>1,523</td>
</tr>
<tr>
<td>$U_D$</td>
<td>719</td>
<td>816</td>
</tr>
<tr>
<td>$U_O$</td>
<td>707</td>
<td>707</td>
</tr>
<tr>
<td>$U_G$</td>
<td>4,279</td>
<td>4,569</td>
</tr>
<tr>
<td>$U_C$</td>
<td>5,035</td>
<td>5,525</td>
</tr>
<tr>
<td>$N_Y$</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Source: Faculties of Education and Business Administration records; University of Lagos, Convocation Ceremonies, Order of Proceedings, January 1987 and 1988*

**Notes**

- $U_T = \text{University overall student unit costs, per year, that is, department or faculty expenditure divided by student enrolment plus University central administrative expenditure divided by total University enrolment.}$
- $U_D = \text{Department or faculty student unit cost, that is, department or faculty expenditure divided by department or faculty enrolment.}$
- $U_O = \text{Student unit cost in terms of University central administrative expenditure, that is, University central administrative expenditure divided by total University enrolment.}$
- $N_Y = \text{Duration of degree courses (in years) taken here as three since the cohorts graduating in 1985–86 and 1986–87 were still predominantly doing a three-year degree.}$
- $U_G = U_T \times N_Y = \text{apparent cost per graduate, that is, overall student unit cost per year times the duration of degree course.}$
- $U_C = \text{Real cost per graduate, that is, apparent cost per graduate (UG) divided by the graduation rate.}$

The costs in Table 12.23 are straight recurrent costs without any allowance for capital consumption or private costs. They measure the expenditure shown
in the approved figures of recurrent spending for 1987–88. They can be compared to those figures for adjusted costs of graduates of the COSIT programme in Table 12.21. * Table 12.24 sets down a comparison of the two programmes.

**Findings**

There are four main findings:

1. COSIT BSc (Education) graduates seem one-third cheaper than regular Education graduates, if the minimum time is taken to complete the degree and if a high graduation rate prevails in COSIT programmes.

2. Even if the normal maximum of eight years is taken to complete, the average cost of a COSIT Education graduate is still slightly lower than the regular programme graduate.

3. COSIT graduate costs in Business Administration and Accounting are some 13 per cent lower than regular graduates provided the minimum time is taken to complete and 50 per cent graduate.

4. COSIT graduates in the same subject areas of Business Administration and Accounting, if they take eight years to complete, are 40 per cent more expensive than regular programme graduates.

Broadly speaking, there is no enormous cost saving in the COSIT programme as compared with the regular programme. COSIT costs per graduate are seen to be highly sensitive to two factors—the average number of years taken to complete the programme and the rate of graduation. The latter has not yet settled down to any pattern. Moreover, COSIT students bear high private costs.
and their time in face-to-face study has a significant opportunity cost. For instance, if both private costs and income foregone are included in the average cost, and if a graduation rate of 80 per cent prevailed, then for a graduate taking six years the adjusted average cost would be N13,808. This latter cost is more than 170 per cent higher than the average cost of the corresponding regular education faculty graduate, admittedly without private costs and income foregone being added.

CONCLUSIONS

COSIT is neither an open-learning institute nor does it have the characteristics, in practice as opposed to in principle, of a correspondence approach to learning. It does, however, fulfil a very useful purpose—otherwise why would there be 10,000 applicants for its 1,200 first admission places? The market for higher education, and it is not inappropriate to use the term market, is receiving signals that the substantial private costs are worth bearing. There are likely to be good monetary returns, especially to the Business Administration and Accounting graduates, as well as perceived psychological returns of having gained a degree from a reputable institution, and these latter count for a lot in Nigeria.

In strict money terms, graduates produced through COSIT cost slightly less than graduates in the same disciplines produced by regular programmes provided that COSIT students complete their course in the minimum time, and that graduation rates are at least 80 per cent for Education and 50 per cent for Business Administration and Accounting. As this leaves out of account the capital costs of the University, of which the major part would be attributed to full-time rather than part-time students, this calculation underestimates the cost advantage of COSIT graduates. Whenever graduation rates fall to 35 per cent and simultaneously the number of years to completion increases to the maximum of eight, COSIT graduate costs rise well above regular programme graduates.

The adopted model of cost-effectiveness is almost comprehensive in identifying the ingredients of the costs of those educational programmes which could be termed distance or open programmes. Only one addition was made in the application described here—that concerned earnings foregone. We take the view that it is illogical to estimate earnings foregone by students as they ‘receive’ their putative radio broadcasts while neglecting such costs when they are incurred in the face-to-face mode. Certainly for COSIT students much time, and sometimes money, is sacrificed in attending the three forms of face-to-face activity.

Moreover, the painful process of study at nights and weekends, painful because it may involve neglecting work and family and may involve loss of additional earnings, is not discussed anywhere. For mature students with family and work responsibilities, the opportunity cost of such time is likely to
exceed greatly the opportunity cost involved for the typical residential full-time undergraduates in their prime learning years, with few responsibilities beyond their studies. Perhaps in evaluating the model, consideration could be given to mapping the various forms of opportunity cost for distance/open learners and for regular students.

NOTES

1. The material in this chapter was collected in 1988.
2. At the Abeokuta Campus of UNILAG; the University of Benin; Institute of Management and Technology, Enugu; Department of Education, University of Ife; Faculty of Science, University of Ilorin; Physics Department, Alvan Ikaku College of Education, Owerri; Centre for Adult Education and Extension Services, Ahmadu Bello University, Zaria.
3. See also the section on ‘COSIT and regular progress compared’.
4. Nigeria is a federation of some 20 states, each with its own state government.
5. The Nigerian currency is the naira, abbreviated here to N. At 17 March 1988 US $1.00 = N4.367.
6. For formulae, see Orivel (1987 p. 26).
8. See Table 12.13.

REFERENCE

Quality, effectiveness and costs
This chapter addresses a narrow but vital question: what does distance education cost and how does this compare with the alternatives?

Distance education can be cost-effective, enrolling and teaching students or producing graduates at a lower cost than that of conventional education. It allows economies by avoiding capital investment in buildings and by limiting expenditure on classroom teachers. Whereas each new class of students at a conventional school or college is likely to need an extra classroom and an additional teacher, a distance-education programme can enrol extra students for a modest additional cost: once materials have been written and an administration set up, the cost of teaching one more student—the marginal cost—may be quite modest. In consequence there tends to be a greater difference between average and marginal costs for distance education than for conventional education. In other words distance education makes possible economies of scale that are not possible in conventional education.

At the same time effective distance education makes its own demand for resources. It needs more time to prepare good teaching materials than to prepare a classroom lesson covering the same ground. Distance-teaching institutions need premises and equipment. Distribution, by post or by radio, has to be paid for. Where face-to-face study, or supervised teaching practice, forms part of a distance-education programme, these costs have to be met along with those of producing materials; the costs of the face-to-face elements behave in the same way as those of conventional education, rising inexorably with the number of students.

In comparing costs we need to ask one more question: who has to pay them? The educational manager is likely to be concerned, above all, with the costs that come out of an institutional budget. But students may themselves have to bear significant costs either directly, where they have to pay fees or buy textbooks, or indirectly, where following an educational course takes up time in which they could otherwise be earning. These opportunity costs are of real importance where, for example, teachers enrolled in an upgrading course could, as an alternative, spend their time earning fees for private tuition given
Quality, effectiveness and costs

out of school hours. These case studies suggest that, in practice, teachers are more likely to do this in developing than in industrialised countries.

In consequence there is no a priori or simple answer to the question, ‘Is distance education a cheap alternative?’ The answer is likely to depend on the number of students enrolled, the sophistication of the media used, the amount of face-to-face support provided, and the range of courses offered to students. And the answer may depend on a decision about whose costs are to be included in the equation. While techniques to examine and compare costs have been developed (cf. Jamison et al., 1978), only a small number of cost studies have been undertaken. Even where cost-effectiveness analysis has been carried out, the results are often difficult to interpret: this is a recurrent theme of the chapter. But cost analysis remains a useful starting point, making possible at least tentative judgements about comparative costs.

WHAT WE ALREADY KNOW

It has long been assumed that, under the right circumstances, distance education can prove cheaper than the alternatives. A number of early cost studies seemed to bear this out. UNESCO and UNRWA used distance education to train teachers in Palestinian refugee camps in the 1960s, and UNESCO reported that the cost per student was $341 as compared with $820 for a comparable in-college course (Lyle, 1967) although no details of the costing were given. Similarly a study of the former Soviet Union’s experience with distance education claimed, without giving details, that costs were a quarter of those for conventional education (Zhamin and Remennikov, 1972).

Worldwide interest in the British Open University, and in the methods it used, led to a new wave of studies of distance education and to developments in methodology. Studies by Wagner (1972 and 1980) and Horlock (1984) both helped to establish a methodology for cost studies and demonstrated the cost advantage of that university as compared with conventional British universities. Jamison et al. (1978) applied a similar methodology to a variety of projects using broadcasting and other forms of educational technology. UNESCO followed a similar approach in their series on The economics of new educational media (UNESCO, 1977, 1980 and 1982). More recently the search for management efficiency has led universities to undertake cost studies so that we have recent cost data on Deakin University in Australia (Deakin University, 1989) and the British Open University (Open University, 1991). Comparable studies have been made of the economics of open universities in Costa Rica and Venezuela (Rumble, 1981 and 1982 respectively) and of a group of programmes at secondary and tertiary level in Brazil, Israel, Kenya, Korea, Malawi and Mauritius (Perraton, 1982).

One aim of the cost studies has been to facilitate comparison between distance and conventional education. In order to make such comparisons we need to take account of both capital and recurrent costs. Distance education
avoids the need for some capital expenditure, such as school buildings, but is likely to require capital for such things as office premises, its share of a broadcasting station, or printing equipment. In contrast schools and colleges need classrooms, lecture theatres and, sometimes, residential accommodation. It is likely to avoid some recurrent costs, on classroom teacher salaries, but will require others, for course writers and tutors, and for paper on which to print correspondence lessons or airtime for broadcasts. Generally distance education and conventional education are likely to require different mixes of capital and recurrent expenditure. In order to compare the two we therefore need to annualise capital costs, calculating the annual cost of a particular capital input.\(^1\) This makes it possible to look at the total annual cost of two different forms of education, even where the proportions of capital and recurrent cost they demand are quite different.

One more distinction is important: between fixed and variable costs. Most or all capital costs are likely to be fixed, as they are unchanged regardless of the number of students. But some costs that are sometimes treated as recurrent, such as staff costs for the production of materials, are likely to be fixed in just the same way: it costs the same amount to write and edit materials for 100 students or 10,000. (In practice, of course, some costs are semi-fixed; the same computer may be all right for 100 or 10,000 students but a larger one may be needed for 1,000,000.)

Cost analysis that takes account of these distinctions, and facilitates cost comparison, entails identifying all the costs, distinguishing between recurrent and capital costs, amortising the capital costs, and expressing the result in a cost function which distinguishes between fixed costs, those that remain the same regardless of the number of students (like the transmission of broadcasts), and variable costs, those that vary with the number of students (like the costs of marking correspondence assignments). In its simplest form the cost function is shown as:

\[
TC_N = F + V(N)
\]

where \(TC\) = total cost
\(N\) = number of students
\(F\) = fixed costs
\(V\) = variable cost per student.

In other words the total cost for a project with \(N\) students consists of the fixed costs plus the variable cost per student multiplied by the number of students. The development of a function in this form makes it possible to compare the costs of conventional and distance education and to see the effect of expanding either system to include additional students.

Where costs are incurred over a number of years, it is necessary to convert currency to its value for a single year (for example, constant 1988 dollars) in order to allow for inflation. In Table 13.1, costs have been converted to US dollars at their 1988 value in order to allow for international comparisons.\(^2\)
There remain both conceptual and practical difficulties in applying the methodology. The main conceptual difficulties arise in comparing the effects of distance education and of alternatives: even where it is possible to study for the same qualification both at a distance and face to face, there are often quite different audiences for different methods of study. Thus, while it may be possible to compare costs, it is far more difficult to know whether differences in effects are to be explained by the method of education or by differences in the audiences. We come back to this problem in the next chapter.

Practical difficulties arise from the scarcity and poor quality of data. In some cases recent data are simply not available. Where costs for different faculties or different methods are available, they may prove to be contentious. Deakin University, for example, has published a review of its costs (Deakin University, 1989) but, faced with the prospect of retrenchment in higher education, academic staff are reluctant to use them or accept their validity. Nor is the problem confined to distance education. It was possible to determine the costs of the National Teachers’ Institute in Nigeria, for example, but much more difficult to find costs for a conventional teachers’ college. Even where data are available there may be problems of quality. Among these case studies it did not prove possible to find data at the right level of detail for the Allama Iqbal Open University or the Zimbabwe Integrated Teacher Education Course (ZINTEC): costings that are generated—and useful—for management do not necessarily provide the data needed for an economic appraisal.

In reviewing the evidence it is in consequence necessary to be cautious about the quality of the data on which it is based. Allowing for that caution, there is a degree of consistency about the findings on the costs of distance education. Earlier studies have suggested that there is a tendency for distance education to have relatively high fixed costs, largely for central administrative costs and for the preparation of distance-teaching materials, and relatively low variable costs. In contrast much conventional education has high variable costs, mainly for teachers’ salaries which rise with increasing numbers of students. Earlier studies confirmed the theoretical expectation that the cost of distance education often, but not always, compared favourably with that of the alternative. The Open University studies suggest that it was producing graduates at rather less than two-thirds of the cost of a graduate in a conventional university (Horlock, 1984). Of the fourteen projects examined by Jamison and Orivel (1982, pp. 258–64) eleven showed evidence of reduced costs per student. In four out of the five cases where it was possible to compare costs per graduate with an alternative, the distance-education programme showed savings.

One general conclusion from the earlier studies is that the economics of distance education are crucially dependent on the scale at which programmes are working. In examining the costs of teacher education for two groups of students in southern Africa with annual enrolments of between 300 and 700, where the data did not seem to allow for the construction of the cost functions
discussed, Taylor (1983, pp. 24–6) concluded that the programmes were not big enough to show the necessary economies of scale. It has been suggested that open universities—more elaborate institutions than many of those discussed in this volume—with 10,000 to 20,000 students are ‘probably critically balanced, in so far as their unit costs are on a par with or below those of campus based institutions’ (Rumble, 1982, p. 138).

The comparisons that have been made are necessarily crude. They lump together programmes and projects of distance education that, as well as differing in scale, differ in the media that they use, in the level of sophistication of that use, and in the amount of face-to-face support provided to students. All these differences have a major effect on costs. The cost of television, for example, is likely to be ten times that of radio. A programme with a large proportion of face-to-face study will have higher variable costs than one that relies heavily on broadcasts and print. We can conclude that raising the number of students in a distance-education programme will tend to reduce the unit cost, while this will rise as more sophisticated teaching media are used and as more face-to-face support is provided.

LESSONS FROM THE DATA

Conclusions about cost need to be considered alongside those on effectiveness, the theme of the next chapter. As Table 13.1 shows, the two broad conclusions to emerge from the studies are that, where it has been possible to measure effectiveness, teacher training at a distance can be effective and that its costs tend to be lower than those of conventional education. In ten of the 11 cases where data are available, costs for distance education appear to have been lower than the alternative; where we have detailed figures, it is reasonable to conclude that distance-education programmes can be designed for teachers at a cost of between one-third and two-thirds of conventional programmes.

These broad statements need to be qualified in four ways. First, some projects were probably too small to show economies of scale. The 11 projects shown in Table 13.1 fall into two groups. The project in Nepal, the two projects in Kenya, and the Correspondence and Open Studies Institute (COSIT) programme at the University of Lagos did not show dramatic economies as compared with conventional programmes of teacher education. Indeed, it was probably more costly to produce examination passes through the early programme in Kenya than it was in regular schools. This does not necessarily rule out distance education as a technique where it is the only way of upgrading teachers who cannot be taken out of the classroom for full-time education, or who can be replaced only by teachers less well-prepared than themselves. These four projects had enrolments in the range 500 to 3,000. In contrast, there were marked savings in five other projects, in Brazil, in Indonesia, at the National Teachers’ Institute (NTI) in Nigeria, in Sri Lanka and in Tanzania where enrolments were in the range 5,000 to 25,000. If the
Table 13.1 Costs and effects of distance-education projects for which costs are available (Currency: constant 1988 US dollars)

<table>
<thead>
<tr>
<th>Country</th>
<th>1988 GNP p.a.*</th>
<th>Units for measuring (N)</th>
<th>Value of (N)</th>
<th>Cost function at 7.5% discount rate</th>
<th>Average cost for (N)</th>
<th>Additional opportunity cost</th>
<th>Educational and cost impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanzania</td>
<td>160</td>
<td>Cost per student p.a.</td>
<td>15,000</td>
<td>( TC_N = 2,015,685 + 1,243.1N )</td>
<td>1,352</td>
<td>n/a</td>
<td>Effects comparable to conventional education. Cost about half conventional education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost per graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil Logos II</td>
<td>2,160</td>
<td>Cost per student p.a.</td>
<td>24,400</td>
<td>( TC_N = 532,974 + 131.6N )</td>
<td>153</td>
<td>n/a</td>
<td>80% pass rate. Costs lower than alternative</td>
</tr>
<tr>
<td>1976–81</td>
<td></td>
<td>Cost per graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>420</td>
<td>Cost per student p.a.</td>
<td>5,000 (approx.)</td>
<td>n/a</td>
<td>84</td>
<td>167( ^e )</td>
<td>Cost 1/6–1/3 of alternative. More effective than alternative for some subjects but less effective for others</td>
</tr>
<tr>
<td>Indonesia</td>
<td>440</td>
<td>Cost per student p.a.</td>
<td>5,000 (approx.)</td>
<td>n/a</td>
<td>584</td>
<td>368( ^e )</td>
<td>Cost about 60% of equivalent. More effective than alternative in languages but less so in mathematics</td>
</tr>
<tr>
<td>Nepal RETT</td>
<td>170</td>
<td>Cost per student p.a.</td>
<td>3,000</td>
<td>( TC_N = 124,994 + 100.7N )</td>
<td>142</td>
<td>n/a</td>
<td>Cost slightly lower than alternative; completion rate 83%, pass rate 57%; no evidence that less effective than alternative</td>
</tr>
<tr>
<td>Basic Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978–90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>280</td>
<td>Cost per student p.a.</td>
<td>20,327</td>
<td>( TC_N = 930,119 + 10.61N )</td>
<td>57( ^e )</td>
<td>n/a</td>
<td>Cost probably lower than regular colleges; completion rate estimated 42%, pass rate estimated 27%, both rates higher than those of regular colleges</td>
</tr>
<tr>
<td>National Teachers'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institute</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978–90</td>
<td></td>
<td>Cost per trained teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Value (Students)</td>
<td>Cost per</td>
<td>Cost per</td>
<td>Cost per</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>----------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan Primary Teachers'</td>
<td>83,658</td>
<td>Cost per</td>
<td>31,674</td>
<td>78-108</td>
<td>Cost per AIOU graduate 45-70% of conventional university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientation Course</td>
<td></td>
<td>successful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Britain Open University</td>
<td>6,500</td>
<td>Cost per</td>
<td>6,500</td>
<td>13,618</td>
<td>Cost per OU graduate estimated at 62% of conventional university</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ordinary BA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya In-service teacher</td>
<td>360</td>
<td>Subject</td>
<td>790</td>
<td>585</td>
<td>Cost relatively high; favourable effects on access</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>equivalent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>p.a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya University of Nairobi</td>
<td>360</td>
<td>Cost per</td>
<td>515</td>
<td>795</td>
<td>Cost thought to be lower than cost of residential equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEd 1986-77</td>
<td></td>
<td>student</td>
<td></td>
<td>350</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>p.a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria COSIT University of</td>
<td>280</td>
<td>Cost per</td>
<td>2,000</td>
<td>253</td>
<td>If opportunity costs are omitted then cost per graduate slightly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lagos</td>
<td></td>
<td>full-time</td>
<td></td>
<td>693</td>
<td>lower than residential campus cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>equivalent</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Cost per</td>
<td></td>
<td>946</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>graduate</td>
<td></td>
<td>2,081*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: preceding chapters except where shown

Notes


b. Costs have been converted to US dollars at the date of the study concerned and then to constant 1988 dollars using the US GDP deflator in World Bank (1990).

c. Taking the additional costs in Table 2.5 all as variable, thus raising the variable cost by 2,973 shillings ($558).

d. Following the text, 67 per cent of the trainees' costs have been taken from the total and shown as opportunity costs.

e. Following the text, 70 per cent of the trainees' costs have been taken from the total and shown as opportunity costs.

f. Based on the actual costs shown in Table 6A.2 in case study for 3,000 students and taking Rs 22.06 = $1.00.

g. A ten per cent discount rate has been used.

h. Table 8.8 gives 83,658 enrolments in 1976-86 with 31,674 successful completers.

i. Graduates per annum.

j. Opportunities for part-time employment for teachers in Britain are less than in other countries reviewed and opportunity cost is likely to be small.


l. These figures are for BEd (Sc) students, assuming six years to graduate, and with the opportunity cost figure including private costs (for example, for travel to campus).

m. This is equivalent to N11,046-2,946 as in Table 12.20 taking 100 per cent, not 125 per cent, of opportunity cost.
fixed costs of the other four projects had been spread over significantly larger numbers, savings in the cost per student could have been achieved.

The second qualification has to do with the level of savings that might be expected with expansion. The cost functions demonstrate that there are sharp limits to the savings that can be expected for programmes with a significant pedagogical content focused on classroom teaching. Where extensive support was provided to students, or arrangements made for thorough supervision of their teaching practice, the variable cost of programmes was relatively high; supervision and support costs necessarily rise in proportion to the number of students so that economies of scale are not possible. The upgrading programme in Tanzania and the BEd programme in Kenya, for example, had fairly high variable costs for this reason. In contrast, NTI in Nigeria provided rather less support to students and in consequence showed much lower variable costs per student.

Third, there is some evidence to suggest that conventional teacher education is relatively costly. It has been noted, for example, that where the content of teacher education broadly overlaps with regular secondary education, large savings can be achieved by providing it through secondary schools rather than in teacher-training colleges (Lockheed and Verspoor, 1989, p. 110). A World Bank review found that annual recurrent expenditure per student in the early 1980s in sub-Saharan Africa was generally much higher at teacher-training colleges than in secondary schools: in Nigeria, for example, the cost per student was (in 1983 dollars) $3,042 and $327 respectively (equivalent to 1988 $3,552 and $382) while the comparable figures for Kenya were $506 and $58 (1988 $591 and $68) (Bellew, 1986, Table 18). The comparative cost advantage of distance education is, in part, a reflection of the relatively high cost of conventional approaches to teacher education.

Fourth, in order to interpret the cost data we need to consider the opportunity cost of study. As the Kenyan and Nigerian degree studies show, in addition to paying fees to their universities, these students could have used their study time to earn from part-time employment so that they had to meet actual opportunity costs in terms of foregone earnings. The studies have shown that, in these cases, a calculation of the total cost of the programme including opportunity costs gives a quite different result from that which we get if we omit them. Comparison with full-time, face-to-face education is made more difficult by the fact that studies of university costs tend to omit opportunity costs for full-time, post-school students who have not yet entered the labour force. Opportunity costs, too, are usually met by individual students and do not appear in the cost of a programme as it appears to a ministry of education, concerned with its own, public, expenditure and not with costs, or foregone income, which fall to students.

There may be a policy implication here. Historically, teacher-upgrading programmes have often been offered free to students. They have attracted students, and maintained their interest, where they have offered improved status and increased pay on completion. Degree programmes like those in Kenya and Nigeria, however, have generally charged fees to their students. There is, in
consequence, likely to be a point at which the opportunity cost, as perceived by an economist-minded student, combined with the actual cost of fees, will outweigh the uncertain and future increase in income to be expected on graduation. Part-time education may be expensive for students in various ways as well as hard work.

With these expressions of caution, the cost data are consistent and robust enough for us to look next at the findings on effectiveness with confidence that there is a reasonably firm economic case for the use of distance education.

NOTES

1 In annualising a capital cost it is conventional to take account both of the expected life of the capital equipment and of the interest that one might receive if the capital were invested rather than spent on, say, a printing press. The annualisation is then the equivalent of the annual rent one would have to pay if one were hiring the equipment instead of buying it.

2 The US GDP deflator shown in World Bank (1990) has been used with a 1989 value computed from the following year’s volume, thus: 1978:84.3; 1979:91.7; 1980:100.0; 1981:109.6; 1982:116.7; 1983:121.2; 1984:125.7; 1985:129.5; 1986:132.8; 1987:137.0; 1988:141.5; 1989:146.0.

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How good, then, were the results? The question demands several answers. We can say something about the audience reached by programmes and about students’ examination results. In some cases we can go on to add something about students’ performance as teachers. All these answers use administrators’ measures, showing how far programmes reached explicit or implicit targets and, in some cases, how their success or failure compared with those of alternatives. But there are also a few data which shed light on students’ opinions about their work and about the role of gender in determining public and individual success.

There are two other sets of lessons to be drawn. The first concerns teaching practice, the Achilles’ heel of teacher education, where we can identify a number of alternative approaches to education in classroom skills. The second concerns conditions for success: the experience of these 12 projects yields some conclusions about ways of running effective programmes of teacher education at a distance.

MEASURES OF EFFECTIVENESS

Many of the programmes started with a numerical imperative. In Britain the Department of Education and Science needed a mechanism that would develop training materials about its new secondary examination and get 450,000 copies of these into the hands of teachers; it turned to the Open University (OU) as the most obvious agency to do this. The teacher-upgrading project in Tanzania was conceived in order to train between 35,000 and 40,000 teachers needed for universal primary education at a time when the conventional colleges had only 5,000 students in total. The first and simplest measure of success is one of reach; as Table 14.1 shows, distance-education programmes, especially but not only at primary level, have a reasonable record of success in reaching audiences.

The ability of a distance-teaching institution, or a government, to reach large audiences is not, of course, the sole criterion of success. Individual students may have different concerns and reasons to enrol. Professional
groups, at least in rich countries, are increasingly expecting opportunities to be available for professional development and continuing education. In Australia, where distance-education programmes are long-established, there is an expectation that distance-teaching institutions will provide opportunities for teachers to raise the level of their qualifications.

The audiences were not always as large as had been intended. In Pakistan the original plan for the Primary Teachers’ Orientation Course (PTOC) was to reach 155,000 teachers in three years; while the enrolment of 46,000 in that time was a considerable educational and logistic achievement, it represented a scaling down of early ambitions. Zimbabwe enrolled 9,000 students through the Zimbabwe Integrated Teacher Education Course (ZINTEC), but there remained large numbers of untrained teachers in the educational service even after they were trained. At a smaller scale, the University of Nairobi enrolled 600 students on its BEd programme out of 3,000 applicants. The distance-education programmes have a reasonable record of success in reaching audiences that are large in relation to those in conventional institutions but may be small in relation to the total size of the teaching force and sometimes in relation to early, and optimistic, plans.

The size of the audience reached may be an adequate measure of success. The British government, for example, sought no feedback and carried out no evaluation of its information pack on the GCSE examination; it was satisfied by knowing that the necessary information had got into the hands of teachers. But in many cases we need to go beyond measures of reach and ask about student success. The simplest criterion is the completion rate and, where completion of the course denotes success, it may be the only one. A teacher-upgrading programme in Swaziland in the 1970s, for example, had no final examination; with an extensive programme of teacher support and of tutor contact with students it was argued that the college staff knew that any student who had completed the course merited the qualification (Young et al., 1980, p. 32).

Completion rates have varied widely. Whereas a number of earlier upgrading programmes had reported completion rates varying between 77 and 97 per cent (Perraton, 1986, p. 12), the data here vary between 42 per cent at the National Teachers’ Institute (NTI) in Nigeria and 83 per cent in the most recent programme in Nepal. Two factors seem the most important in explaining the variation: the level of the qualification and the motivation of students. The degree-level programmes in Britain, Kenya and Nigeria demanded part-time work spread over several years from mature students, often with family as well as job responsibilities. In so far as the data are full enough to tell us about completion rates, they suggest that these are comparable with those for other part-time degree courses. The motivation of students differed widely from one programme to another. In the earlier programmes cited above, students were guaranteed enhanced status and more pay on completing their course. Students in Tanzania and Zimbabwe enjoyed that prospect, and received an income as trainee teachers while they were studying. Some students, in Brazil and at NTI
in Nigeria, however, appear to have been motivated not by a desire to raise their status as teachers but by the possibility of using a teaching qualification as a gateway to higher education. Students on the PTOC in Pakistan had far more limited prospects. They were put on the course by their district education officer, but were offered neither incentive, in terms of higher pay on completion, nor retribution if they dropped out.

Examination results should tell us more than completion rates. Conscious of academic scepticism about distance education, and anxious to provide a qualification that would be respected, the organisers of these programmes generally required students to take an examination that was equivalent to, or identical with, those taken by regular school or college students. While examination success cannot be equated with teaching capacity, we can legitimately assume that a reasonable examination pass rate demonstrates that a programme was effective in teaching academic subjects. In nine cases we have data on pass rates. With most figures falling between 50 and 90 per cent we can conclude that distance-teaching methods are, in practice, capable of getting students through their examinations. As the data in the previous chapter found that costs per graduate or completing student compared favourably with those of conventional education, the finding can be seen as confirming that distance education can have a place in the armoury of ministries seeking to raise the quality of their teaching force. Distance education can reach audiences. With the right organisational structure, and with a prospect of good enough benefits to motivate students, it can achieve high completion rates. Reasonable proportions of students can be expected to pass their examinations.

In some of our cases we can go one stage further and make a direct comparison between the pass rates of students of distance-education courses and those studying a similar course through conventional methods. In Nepal the distance students in 1990 achieved markedly worse results than those attained in face-to-face classes; this may demonstrate an unexpected weakness in the distance programme but, as the authors suggest, may result from an unwillingness to fail the other group of students at a time of considerable tension. The figures for NTI in Nigeria show the opposite phenomenon: their students tended to perform better than those studying in conventional, face-to-face teachers’ colleges. Both NTI and the teachers’ colleges ran in parallel with general secondary schools: it seems likely that the most able students went to general secondary schools and that a significant proportion of those who just failed to get there decided to earn a living as a teacher, studying through NTI at the same time, rather than to attend a teachers’ college as a second-best form of secondary education. Comparisons at degree level are more difficult. The indicative figures from Britain, Kenya and Nigeria suggest that part-time degree students working at a distance achieve similar results to those of part-time, on-campus students. This finding reflects Australian experience where the range and variety of part-time degree courses facilitates such comparisons.
LEARNING HOW TO TEACH

The programmes varied in their content, and in the balance between teaching subject content, teaching about education, and teaching pedagogical skills. Some programmes were heavily oriented towards improving their students’ subject competence; in these cases academic examination performance is a legitimate measure of success. But other programmes included one or more of the other elements so that it is reasonable to ask whether trainees could teach, or teach better, at the end of their course.

In asking that question we need also to consider how distance education compares with other approaches to the training of teachers. Unfortunately the evidence on the effectiveness of conventional methods of teacher training is neither clear nor encouraging for policy makers. One recent study found that ‘There is little evidence about which approaches work best in training teachers to undertake the variety of roles required of them’ (Avalos, 1991, p. 30). A World Bank review found that ‘in many countries, teacher training provides few teaching skills’ (Lockheed and Verspoor, 1989, para. 222), while an earlier study which examined the effects of teacher training on students’ performance concluded:

In 13 studies the presence of certified teachers in the classroom significantly affected student scores, and in 19 they did not… In the meantime, it is possible to suggest that present methods and duration of teacher training and upgrading should be reviewed with caution as a way to increase student achievement.

(Schiefelbein and Simmons, 1981, p. 25)

Over and above uncertainty about conventional methods of training teachers, there are methodological difficulties in answering the fundamental question about the effectiveness, or comparative effectiveness, of distance education. Some of these arise from the differences between the programmes and projects discussed. They differed in their teaching methods, and in the balance between different media, and between work done individually or in a group. Some focused more sharply on classroom work than others. These differences may be as important variables as the difference between distance and conventional education. Students training on-the-job through distance education almost inevitably have greater classroom experience than those training in a conventional college, although a smaller proportion of their teaching practice may have been supervised. To compound the difficulty, as time goes on we may expect the differences between groups of students trained in different ways to be eroded by the common experience of teaching under similar conditions and in similar schools. The researcher’s dilemma here is the need to ask about long-term as well as short-term results. Despite the difficulties some of the studies throw light on the question.

In Tanzania, two separate research enquiries found similar results: that students trained at a distance tended to perform better than those trained conventionally on a number of measures of classroom performance, but rather worse
The effects

academically and in their command of the subject matter. There was one specific and important negative finding about response to different subjects: students taught conventionally performed significantly better in science than those trained at a distance. In Zimbabwe, while it was not possible to make this kind of comparison, studies of teachers’ classroom effectiveness showed positive results, while the examination performance of pupils taught by ZINTEC teachers were in line with the national trend. Findings from Sri Lanka and Indonesia are more complex. In both countries students studying face to face had better results in mathematics than those working at a distance. In contrast, distance-teaching methods worked reasonably well for the study of mother-tongue languages. In Sri Lanka distance education performed better than the alternative in teaching language and in developing professional attitudes towards education, while in Indonesia neither distance nor conventional education were effective in changing trainee teachers’ attitudes.

We have two further strands of evidence about the impact of these programmes on teachers’ classroom work. While researchers did not survey classroom practice, students in Pakistan reported that they had found their studies useful and relevant to their job as teachers. Although a study in Nepal found that the Radio Education Teacher Training Course (RETT) had affected students’ subject knowledge but not their teaching methodology, a later study found that trainees reported that they had succeeded in using material from their course within their own classrooms.

The results are too limited to yield firm conclusions about the appropriateness or inappropriateness of distance education for particular purposes. But they do offer some pointers for educational policy. The most important has to do with teaching practice. The programmes did not generally try to teach classroom practice—as opposed to academic subjects and educational theory—at a distance. Most programmes where this formed part of the curriculum ensured that arrangements of one kind or another were made for the supervision of practical work within trainees’ schools or for questions of classroom practice to be addressed in face-to-face sessions. In doing so they faced organisational difficulties of the kind common to the supervision of teaching practice generally; we turn, below, to questions of organisation.

Both pre-service and in-service programmes using distance education meant that students were inevitably following a model of teacher training biased towards practical classroom experience. The research undertaken has not tried to differentiate between the effects of that experience, and of the process of studying at a distance, on their classroom performance. In the absence of such research, and in the light of the moderately encouraging findings from these more limited studies, there seems, at the least, no reason to reject the distance-education model. The issues resolve themselves not into questions about the appropriateness of distance education but about the merits of different models of training, about the integration of theory and practice, and about effective methods of organisation: familiar questions that belong in the mainstream of educational planning. The experience provokes questions, too, about the sequence
of different parts of teacher education and training. In this context the Australian proposal to require associate teachers to follow a part-time course, after graduation and as they begin to teach in the schools, is an interesting variation, made possible by the availability of courses taught at a distance.

Beyond this, the research findings are notably undramatic; the differences between trainees studying in different ways are relatively small and, so far as they go, do not suggest that distance education must be ruled out, or ruled in, for any particular educational purpose. As a bias for policy, the difficulties in teaching science at a distance, which might have been expected, and in teaching mathematics, which is more surprising, suggest that face-to-face sessions may need to have a bigger role in these subjects than in others of the curriculum.

Programmes of distance education had effects beyond these on their enrolled students. Where radio was used within a distance-education programme there were often shadow audiences, so that the broadcasts are likely to have had some effect in increasing general awareness of the educational issues they were addressing. Printed materials, too, had a value beyond their immediate use by trainees; in Pakistan the PTOC materials formed a rare resource for teachers in schools where there were few printed materials. Even in as information-rich a country as Britain, OU materials are seen as a valuable resource and one whose quality has become familiar and influential.

THE STUDENTS’ EXPERIENCE

Distance education can help towards social mobility. Students in Brazil, for example, appear to have seen the Logos II programme as a possible route to social advancement. Similarly in Australia and Britain, where some teachers had been left behind as entry qualifications to the teaching profession rose and they were in danger of being taken over by newcomers, distance education appeared to offer improved chances of promotion. Degree programmes offered wider opportunities. (Programmes may, therefore, in a narrow sense, appear to be dysfunctional if they lead the ablest teachers to move out of the educational system).

At the same time, as noted in the last chapter, there were real opportunity costs for students following courses at a distance. Some of those costs can be, and have been, calculated in terms of lost earnings. But there were also considerable costs in time which would not otherwise have been devoted to paid work: the women students in Brazil spent up to nine hours a week on their course on top of teaching and looking after their families. The expenditure of time appeared worthwhile in part because the programmes offered a route to social advancement; Logos II worked better in a poorer state than a richer one.

In some, but not all, countries distance-education courses have been of particular value for women teachers. Women in Australia, for example, saw their course as easing the way back to work, or holding out the prospect of promotion; while most of the senior posts are held by men, four out of five students studying at a distance are women. In Nepal, in contrast, where as
recently as 1951, 99 per cent of schoolchildren were male, teaching remains a predominantly male occupation and far fewer women teachers were included among the trainees. Even where women predominate there have been barriers to effective study: the study in Brazil reported on opposition by trainees’ husbands, while it appears that women students did not gain in confidence while following the course in Tanzania in the same way as men, although the sample size is too small to reach a firm general conclusion from the finding.¹

TEACHING PRACTICE

The organisation of teaching practice presents both logistical and educational difficulties, whether teachers are trained conventionally or at a distance. The logistical difficulties arise from the need to get trainee teachers into the schools and supervise their work, often at considerable distances from the college where they are studying. Difficulties are compounded in large countries or where population densities are low; the time taken to travel and visit students was an organisational constraint on the BEd programme in Kenya. The main educational difficulties arise from the need to relate theory to practice, to persuade trainees that what works in the college and sounds good in the lecture will also work with a large class in a remote classroom.

Some programmes of teacher education have avoided confronting the first of these problems. The course run by the University of Nairobi in the 1970s, for example, was designed to provide a secondary-equivalence course for teachers; as its aim was limited to raising their academic competence no teaching on classroom practice was included. At a different level the British OU has, until now, not been involved in supervising classroom work by its students. Many of its students have been teachers who were following academic courses, which might or might not include educational subjects, but which did not include teaching classroom skills. (Even where education courses have a more practical orientation the University has not so far got into supervision of classroom practice; this will of necessity change once it embarks on the initial training of teachers).

Other programmes have set up machinery to supervise students in the classroom. In Swaziland, again in the 1970s, this was no different from the supervision of full-time students. William Pitcher College was located centrally and it was possible for its staff to visit distance-education students in any part of the country in a single day. Classroom supervision demanded a more complex organisational structure in Tanzania. District education staff and head teachers were deployed to supervise trainees so that the organisation and supervision of teaching practice was integrated with the work of the regular educational system. In Zimbabwe, where ZINTEC students spent their periods of face-to-face study in four designated colleges, the staff of these colleges were responsible for visiting them in the field, although visits could not, in practice, be made as often as had been planned.
The administration of teaching practice has often demanded an alliance between a distance-teaching institution or department and others. NTI in federal Nigeria had to work with state authorities in providing face-to-face support for teachers. The University of Nairobi had, perhaps, an easier task as it could use the University’s own extra-mural centres for face-to-face study, although this still left it with the challenge of liaison with schools and with those responsible for running them.

Other programmes found that, for one reason or another, it was not possible to visit students in the field, and various alternatives were sought. In Nepal distance ruled out visits and it did not prove possible to arrange teaching practice in schools during the students’ face-to-face sessions. Peer-teaching sessions were arranged instead in order to introduce a practical element, and a system of resource and satellite schools was established so that groups of teachers from one locality could meet regularly under the guidance of a resource teacher. In Brazil, where Logos II did not have the capacity to supervise teaching practice, microteaching was incorporated into face-to-face sessions with teachers. The British OU, while not supervising teaching practice, has tried to link theory and practice through the work demanded of teachers—inviting them to report on their classroom experience of ideas and practical activities covered in the course and building up research findings from the work of many individual students.

Three conclusions emerge. First, where it was decided to supervise trainees’ classroom work, the difficulties that arose were ones of scale, arising from the number and distribution of the students rather than from their mode of study. Second, even where logistical problems meant that classroom work could not be supervised, there were some alternative ways of giving the courses a practical orientation. But, third, problems of integrating theory and practice, common to much teacher education, inevitably remained. Teachers in Australia, for example, were reluctant to relate what they studied to what they did in the classroom. In Nigeria, there seems to have been a contrast between the methods recommended in the printed lessons and the practice in students’ face-to-face study sessions. Perhaps the difference is that students training through distance education have to face such contrasts as they study: those following pre-service courses do so more sharply later when they are employed as regular teachers.

In short, distance education, which includes elements of face-to-face study, can be designed to include supervised teaching practice and other practical elements. Programmes have not found the perfect strategy for overcoming the barriers between educational theory and classroom practice; the problems here are shared by all programmes of teacher education, whether they are taught conventionally or at a distance.

CONDITIONS OF SUCCESS

Educational innovations are tender seedlings. Some shrivel for lack of resources. Some are burned up under the bright lights of over-optimism and publicity. Some grow rapidly and gloriously only to fade as their demands for
resources crowd out other initiatives. These twelve programmes tell us something about the conditions they need if they are to survive and flourish.

One set of conditions has to do with the structural relationship between distance education and the educational service generally. Nkrumah’s advice, ‘Seek ye first the political kingdom’, may have been economically naive but is exemplified here. The upgrading scheme in Nepal took off effectively only after there had been clear agreement on its goals by government. The schemes in Tanzania and Zimbabwe demanded national resources and coordination that were made possible only by heavy, and high-level, political support. As programmes continue, so the need for political support remains: if programmes raise the qualification level of teachers, so they raise demands for increased salaries, which can be met only if there is the political backing necessary to release funds.

As we saw, the relationship between a distance-education programme and the regular arrangements to support and train teachers has particular significance where programmes are to teach classroom skills. Trainees’ classroom work cannot be supervised just by the staff of a distance-teaching institution: there are seldom enough of them. The nature of that relationship will vary from place to place. Tanzania could call on a cadre of adult-education workers for this purpose while Brazil used study-centre leaders to supervise microteaching. But, in planning a programme to raise the quality of teaching, a relationship of this kind needs to be in place. The more closely classroom work is supervised, the more demanding are the problems of organising and orchestrating this relationship—and, very likely, the better are the chances of success in raising the quality of classroom work.

Programmes have also varied, as we saw in Chapter 1, in their own organisational structure. The evidence does not allow us to rank structures in order of effectiveness. Differences of national educational policy, the level at which programmes are offered, and the existing institutional structure within a country all have a bearing on this. But there is some evidence which bears on sustainability and, with it, the development of professional competence. Distance education for teachers in the 1970s was dominated by the work of a number of African projects designed to meet an urgent, post-independence need for primary teachers. Botswana, Malawi, Swaziland and Uganda alike designed projects for this purpose, generally based in teacher-training colleges and conceived as one-off projects. Although, in all these countries, there are still shortages of trained teachers, the programmes did not survive. Two contrasting stories emerge from these studies. First, university-based programmes have, in contrast, survived. Teacher education is seen as a continuing priority for the open universities in Indonesia, Pakistan and Sri Lanka. That continuity means that the universities have developed an increased capacity to mount effective programmes; the Primary Teachers’ Certificate Course in Pakistan builds on the achievements of the PTOC and relies on the know-how which the university staff have gained over the years. Although the programmes are much smaller, the Universities of Nairobi and Lagos have
maintained their concern with external students working through distance education over 24 and 16 years respectively, steadily building up their expertise as they did so. It may be significant that the open universities have worked at a larger scale than the bimodal ones where distance education ran alongside conventional courses.

Second, the very different countries of Nepal and Nigeria have demonstrated that it is possible to establish a specialist distance-teaching institution, oriented towards teacher education, and for it to survive, to flourish, and to become accepted as part of the regular educational service so that its funding becomes assured. In these institutions, too, staff have built up the expertise which makes for effectiveness as well as sustainability. The huge size of Nigeria, and the consequently large enrolment at NTI, makes it look a natural feature of the educational landscape. The RETT activities in Nepal, seen by the Ministry of Education as one among a number of alternative ways of training teachers in-service, were sustained by donor aid. The maintenance of the specialist expertise of the Nepal staff, built up over the years, depends on the government’s continuing to support the enterprise.

Thus both universities and specialist institutions have shown the capacity to sustain work in distance education. Their survival, and growing capacity and expertise, has made them able to adapt to changing demands for different types and levels of in-service education.

A further set of conditions for success has to do with that expertise in the practice of distance education. There is much work still to be done here. The interesting findings about the comparative effectiveness of distance education in language, mathematics and science, for example, suggests that we need better educational design and more research on integrating face-to-face and distance study and on preparing effective teaching materials, especially in mathematics and science. But, if one compares teaching materials developed one or two decades back with those produced now, the difference is marked. The programmes discussed here, and others, have steadily developed a capacity to teach effectively from which their students have benefited and continue to benefit. The distance-teaching institutions can now, with a fair degree of consistency, produce materials which are sensitive to the linguistic needs of their students, which incorporate teaching devices to stimulate effective learning, and which maintain their students’ interest. The successes recorded here are, in considerable measure, due to that increased capacity.

At the same time, practical constraints have limited their effectiveness. Courses are at their most effective if they combine a number of media. And yet, with the exception of Nepal, where the programme was radio-led and originally designed in part to explore the use of radio, reports consistently talk of the use of radio falling away because of difficulty with broadcasting schedules and with funding air time. The print-led programmes have fallen back on the use of print and, almost certainly, educational quality has suffered. The 12 programmes discussed have all been modest in their use of technology. With some exceptions in the rich countries they have relied on print and radio,
not computer-aided learning or satellite communication or television. And yet logistical and funding constraints have prevented staff from using the full pedagogical capacity of the available media.

Finally, success is dependent on a sensitivity to the needs of students. It is necessary not only to develop courses which students can understand and enjoy but also to maintain their interest and motivation. The course developer will, no doubt, hope that the intrinsic interest and worth of the subject matter will maintain the student’s enthusiasm. But more is often needed; we all value extrinsic rewards too. Increased status, qualifications that may lead to social mobility, and higher pay are powerful motivators. The evidence shows that many courses of teacher education demand a heavy investment of time from their students, and sometimes entail an actual or potential short-term loss of income. If students’ reasonable expectation of reward is dashed, motivation slumps.

Sensitivity to the needs of students, however, goes beyond a concern with motivation. Those running programmes need to be aware of the conditions under which students are working and to ensure that the demands upon them are realistic. Women students in particular, in many cultures, find that part-time study gives them a third job of work. The practical arrangements for study will be most effective if they respond to these realities, ensuring, for example, that vacation courses can run with the grain of students’ lives or that broadcasts are put out at an appropriate time of the day. Success depends on the detail of implementation and planning as well as on grand design.

CONCLUSION

Education is not just a numbers game. For many teachers, and potentially for all students, it is also about enriching and empowering, about culture and creativity, about individual opportunity as well as social need. And yet it is also about numbers. Our best guess is that 25 million children in the Commonwealth never get to school. And yet a quarter-million does represent a significant number of teachers. Their experience demonstrates that distance education can be relied upon to influence the education of huge numbers of children. For the studies reported here confirm that the results of distance education can stand comparison with those of conventional education. Distance education has advantages in reaching students and in its costs. The problems in its use for teacher training are not about characteristics intrinsic to the process of distance education. They are about practical arrangements, and in particular about arrangements for linking theory and practice, that will arise in any scheme for educating large numbers of teachers.
Table 14.1 Effectiveness of distance education for teacher training

<table>
<thead>
<tr>
<th>Programme</th>
<th>Enrolment</th>
<th>Completion %</th>
<th>Examination %</th>
<th>Effectiveness and teacher performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-SERVICE TRAINING</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tanzania</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TTD Training junior secondary leavers as primary teachers</td>
<td>45,534 total</td>
<td>82</td>
<td>94</td>
<td>Academic subjects comparable with conventional teacher training except in science; classroom performance better</td>
</tr>
<tr>
<td>Zimbabwe ZINTEC</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Training senior secondary leavers as primary teachers</td>
<td>7,353 total</td>
<td>n/a</td>
<td>80</td>
<td>Positive effects both on subject-matter knowledge and teacher effectiveness</td>
</tr>
<tr>
<td>IN-SERVICE TRAINING</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Brazil LOGOS II</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Training primary-school teachers with curriculum equivalent to primary and junior secondary</td>
<td>24,400 total</td>
<td>n/a</td>
<td>78</td>
<td>n/a</td>
</tr>
<tr>
<td>Sri Lanka National Institute of Education</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Training primary-school teachers with secondary leaving qualifications ('O' or 'A' level)</td>
<td>5,000 approx. currently</td>
<td>n/a</td>
<td>n/a</td>
<td>Positive effects on subject matter, teaching skills and attitudes; less successful than conventional college in mathematics</td>
</tr>
<tr>
<td>Indonesia Open University</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrading lower secondary teachers</td>
<td>5,000 approx. currently</td>
<td>n/a</td>
<td>n/a</td>
<td>Positive effects on subject mastery and in theory and practice in skills; relatively poor results in mathematics; apparent decline in attitudes towards teaching</td>
</tr>
<tr>
<td>Nepal RETT for primary teachers without school-leaving certificate</td>
<td>6,429 total (1980–87)</td>
<td>84</td>
<td>54</td>
<td>Main aim raising subject competence; self-report by participants on BTT course claimed classroom implementation of lesson material</td>
</tr>
<tr>
<td>Country/Program Description</td>
<td>Year(s)</td>
<td>Pass Rate</td>
<td>Notes</td>
<td></td>
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<tr>
<td>----------------------------------------------------------------------------------------</td>
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<td></td>
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<tr>
<td>BTT Basic Education course for SLC-pass teachers</td>
<td>1987-90</td>
<td>57</td>
<td></td>
<td></td>
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<tr>
<td>Nigeria NTI</td>
<td>1987</td>
<td>42</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Training primary teachers TCII: following two-year secondary education</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>NCE: tertiary level</td>
<td>1976-86</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
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<tr>
<td>Pakistan AIOU</td>
<td>1976-86</td>
<td>56</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Training primary teachers, mainly secondary graduates, introducing new curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CONTINUING EDUCATION</td>
<td></td>
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<tr>
<td>Britain Open University</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate and postgraduate courses in education, at university level but without formal entry requirement to BA courses</td>
<td>1989</td>
<td>76</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Open University</td>
<td>1989</td>
<td>76</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Undergraduate courses (1989)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>1989</td>
<td>76</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>3,606 courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate (1989)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90 postgraduate</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Postgraduate</td>
<td></td>
<td></td>
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<td>Rose from 300 to 4,000 between 1975 and 1980</td>
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<td>Pass rates higher than those of conventional training but no direct evidence.</td>
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That conclusion takes us on to a new agenda: about the integration of distance with conventional education and about the informed and considered adoption of the most appropriate means for agreed educational ends. The means needed to extend education to those 25 million, and to raise its quality for those who are already at school, are likely to include distance along with conventional education.

NOTES

1 I owe this point to Alan Woodley of the British Open University.
2 UNESCO educational statistics on primary-enrolment ratios suggest that in the late 1980s the figure was of this order, with the largest proportion of these in the Indian subcontinent and in west Africa.

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