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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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
The context

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

audiences for such programmes we inevitably also examine the purpose for which they were established. Distance education has been used most often to train primary-school teachers, but there is some experience of its use for secondary and tertiary teachers. Some courses have been aimed at the initial training of teachers who are entering the teaching force, some for initial training of those who have already worked as teachers for some years, while others are for the continuing education of those who are experienced and qualified but want to use distance education as a way of upgrading their qualifications and increasing their skills. The categories are set out in Table 1.1.

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

Table 1.1 Examples of some distance-education programmes

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
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<tbody>
<tr>
<td>Pre-service initial</td>
<td>Tanzania programme for emergency training</td>
<td>Guyana emergency course to meet shortage</td>
<td>University of Surrey offered a Diploma in the</td>
</tr>
<tr>
<td>training for</td>
<td>of 45,000 school leavers for universal</td>
<td>of science teachers</td>
<td>Practice of Higher Education, available both</td>
</tr>
<tr>
<td>inexperienced</td>
<td>primary education</td>
<td></td>
<td>on the campus and at a distance</td>
</tr>
<tr>
<td>teachers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-service initial</td>
<td>Logos II in Brazil provides secondary</td>
<td>Open University in Sri Lanka offers courses</td>
<td></td>
</tr>
<tr>
<td>training for</td>
<td>equivalence courses which give teachers</td>
<td>for secondary teachers lacking professional</td>
<td></td>
</tr>
<tr>
<td>experienced teachers</td>
<td>their basic qualification</td>
<td>qualifications</td>
<td></td>
</tr>
<tr>
<td>Continuing</td>
<td>Deakin University, Australia, runs a BEd</td>
<td>Open University, UK, offers a range of in-service</td>
<td>The Surrey diploma has attracted experienced</td>
</tr>
<tr>
<td>education</td>
<td>programme followed mainly by primary teachers wanting to upgrade their qualifications</td>
<td>courses for the professional development of teachers</td>
<td>university teachers as well as recent recruits to the profession</td>
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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,
Distance education for teacher training

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 the pent-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.

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In-service initial training of teachers
4 Logos II in Brazil


APPENDIX 4A

Table 4A.1 Distribution of instructional modules

Table 4A.2 Logistic regression of success in Logos II

Degree of significance: *<0.10 **<0.05 ***<0.001
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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)

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.

f. 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.

g. 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.

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

i. 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.
j. 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).

k. 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).

l. 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)

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).
6 Radio Education in Nepal


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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)

RETTP 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

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APPENDIX 6A: COST TABLES

Detailed calculations summarised here appear in Holmes et al. (1991). Table 6A.1 Costs of ‘face to face’ BTT course (Currency: Nepalese rupees) Notes a. Based on 1988–89 BTT figures b. This represents staff salaries and benefits prorated at 45% of their workload assigned to teacher trainings conducted by MOEC/Régional Directories. c. This represents the shadow price for the space occupied by the Teacher Training Unit in the MOEC building, prorated at 45%, the share of the overall teacher training annual target (6,667 teachers) trained by MOEC/Regional Directories. d. Rs 1,008 is ‘additional expenses’ born 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 Rs 6,760 per trainee. Table 6A.2 Costs of RETT BTT course (Currency: Nepali rupees) Notes: a. Based on data from 1988-89 fiscal year and BTT sessions. b. It is assumed that 75% of RETT project’s effort goes towards the BTT programme for high school trainers (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 value 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; costs of original lessons have been amortised over 12 years of expected use.

Table 6A.2 Costs of RETT BTT course (Currency: Nepali rupees) Notes:

a. Based on data from 1988-89 fiscal year and BTT sessions.
b. It is assumed that 75% of RETT project’s effort goes towards the BTT programme for high school trainers (25% towards other developmental activities).
c. 75% of total salaries and benefits = Rs 1,041,500, of which 67% goes for professional staff and their support.
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 value 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; costs of original lessons have been amortised over 12 years of expected use.
6 A
. 3
Costs of radio based courses if run with two
Notes: The following assumptions were made in projecting the cost of RETT 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 months sessions per year: (1) Variable (per teacher) costs will not change (2) Cost of radio lesson production, studio 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 doubles since already trained supervisors can be utilised in more districts).

(5) Cost of district monitoring by RETT Project and fields 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%.

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, which 67% goes for professional staff and their support, c. 33% of salaries and benefits for non-professionals staff.

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.

RET Project complex was constructed in two phases; total costs have been converted to 1988 prices (Rs 4,100,000) and annualised over 2.5 years; 75% of this has been taken as codue to the BTT course.

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 teacher's hourly salary rate, these would total to Rs 5,409.

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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.
Table 11A.1 Yearly capital costs of administration of the Department of Education

Capital costs

Table 11A.1 Continued

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 11A.2 Continued

Table 11A.3 Yearly capital costs of production of audio-cassettes

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

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.

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.

Recurrent costs

Table 11A.5 Yearly recurrent costs of administration

Table 11A.6 Yearly recurrent costs of production of study units

Table 11A.7 Yearly recurrent costs of producing audio-cassettes

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.8 Yearly recurrent costs of duplicating and distributing print materials

Table 11A.9 Yearly recurrent costs of duplicating and distributing audiocassettes

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.

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 Continued

Table 11A.10 Yearly recurrent costs of face-to-face sessions

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 audiocassette programme has been divided by three.

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.
Table 11A.13 Students’ opportunity costs

Table 11A.12 Yearly recurrent costs of examinations

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.

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.

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.
The costs


14 The effects


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Bibliography


