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Hilary Perraton

Theory, evidence and practice in open and distance learning

BIS-Verlag der Carl von Ossietzky Universität
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Content

Series Editors' Foreword

'Theory, evidence and practice in open and distance learning' by Hilary Perraton assembles a number of previously published papers, spanning a period from 1973 (earliest) to 2010 (most recent). The papers are re-published, as a rule, without further edition except, in a few cases, where otherwise too long papers have been abridged. Each paper has been put into context by a short abstract which provides the background against which the paper has to be read.

The context, largely, is British. However, the British story is a major narrative thread in the of distance education quilt. To this date the British Open University (OU) and the Commonwealth of Learning (CoL) serve as major reference points for any distance educator who wishes to claim more than a superficial understanding of the discipline. And there are few distance educators whose life is so enmeshed in the disciplinary formation of distance education as the life of Hilary Perraton. Hilary 'was there' when the National Extension College (NEC) tested the viability of the approach of teaching at a d istance, later implemented at the Open University (OU); he 'was there' helping to create the Commonwealth of Learning (CoL). While some of the institutions, to the formation of which he contributed, are less well known, as Botswana Extension College (now Botswana College of Open and Distance Learning) or the University of the West Indies, and some have turned out not to be sustainable (such as the International Research Foundation for Open Learning, IRFOL), all added to the rich quilt of experience stretching over nearly fifty years and drawing from culturally as different places as Barbados, Botswana or Pakistan.

But experience has to be read not in the 'passive voice'. Especially at the formative days of distance education there were strong theoretical and even normative agenda ('ideology') shaping the practice of distance education. In fact, one could see his argumentative core resting on a tripod of (i) ideological commitment to widening access to education; (ii) the concern for quality in education (reflected in the building interaction in the DE system); and (iii) the practitioner's acknowledgement of practicalities on the ground.

In spite of all this, the book is not meant to take the reader on a biographical journey (this is one of the reasons why the chronological arrangement was avoided), nor is it an introduction or a systematic treatise on distance education.

One could see the assembled papers as 'sondes' (a sonde is an instrument to access/ grasp distant or difficult to access places in order to measure something) or as 'probes' taken from historically/geographically distant and difficult to access contexts, in which theory of distance education is used to take measure: We see how the perennial questions of distance education theory ('Is there a teacher in the system?'; 'How to build in two way communication in a system at a t ime when technologies of responsive interaction at a distance were not yet available?') play out in different times and contexts. This adds, as we hope, depth to the understanding of distance education where often the focus today is narrowed to internal and, above all, issues of technology.

Hence reading this book is likely to be interest-driven rather than linear. The *index* may help here (particular attention was given to developing the index as a comprehensive search tool). The reader interested in 'learning', or 'cost effectiveness' will be able to probe into distant

contexts and will be able to see how the theoretical parameters of distance education played out in these contexts.

Franziska Vondrlik deserves our thanks for diligently editing the book and Ulrich Bernath for contributing the index.

The Editors
November, 2011

Acknowledgments

Paper 1: "Is there a teacher in the system?" was first published in the Open University journal, "Teaching at a Distance", 1, 1974, pp55-60.

Paper 2: "Two-way communication within a distance-teaching system" was written as a p aper for the 1975 conference of the International Council for Correspondence Education and reproduced in "The system of distance education" (ed. J Granholm) Malmö: ICCE, 1976, pp79-85.

Paper 3: "The roles of theory and generalisation in the practice of distance education" was presented by invitation at a seminar at the Zentrales Institut für Fernstudienforschung of the Fernuniversität, Hagen and originally published as ZIFF Papiere 67 (Hagen: ZIFF, 1987).

Paper 4: "International research in open and distance learning" is taken from a longer paper of the same name with the subtitle "Report of a feasibility study" published by the International Research Foundation for Open Learning (Cambridge: IRFOL, 1997).

Paper 5: "Rural education in Botswana" is adapted from "Starting the Botswana Extension College" (IEC Broadsheets on Open Learning, 11), (Cambridge: International Extension College, 1977).

Paper 6: "The virtual wandering scholar: Policy issues for international higher education" was the keynote speech at the annual conference of the Higher Education Research and Development Society of Australasia, 1997 on Advancing international perspectives, Adelaide, 8-11 July.

Paper 7: "Technologies, education, development and costs: A third look at the educational crisis" was presented at a round table "University and technology for literacy/Basic education partnerships in developing countries", called by the International Institute for Literacy, 2001, Paris 10-12 September.

Paper 8: "Well-trodden routes and mountains still to climb" was the keynote speech for the annual conference of the Distance Education Association of Southern Africa, 2004, Maseru 18-19 September.

Paper 9: "Techniques for teaching at a distance" is adapted from "The techniques of writing correspondence courses" (IEC Broadsheets on Open Learning, 2), (Cambridge: International Extension College, 1977)

Paper 10: "Choosing technologies for education" was presented at the Caribbean Telisphere conference, 1999 (St Michael, Barbados 24-27 November) and subsequently published in "Journal of educational media", Vol. 25, No. 1, 2000, pp 31-38. The journal's website is at http://www.tandfonline.com.

Paper 11: "Mass media and basic education" is adapted from a World Bank report "Basic education and agricultural extension" (© International Bank for Reconstruction and Development/The World Bank, 1818 H Street NW, Washington DC 20433, USA), 1983.

Paper 12: "The cost effectiveness of distance education for primary teacher training" is adapted from a paper presented at a regional seminar on distance education for primary school teachers, 1996, Bangkok, 21-24 October, then published in "Distance education for primary school teachers" (Asian Development Bank (ed.), Manila, 1997), pp 111-155.

Paper 13: "Quality and standards in teacher training by open and distance learning" was presented at a Commonwealth of Learning Pan-African dialogue on inservice teacher training by open and distance learning, 2001, Windhoek, 9-12 July.

Paper 14: "Distance learning scholarships in higher education" is adapted from a paper "Access to international postgraduate study: The role of distance-learning scholarships" presented at the research conference of the European Distance Education Network, 2008, Paris 20-22 October.

Paper 15: "Capability, development and open and distance learning" was the keynote speech for a conference on distance learning for health, London International Development Centre, University of London, 2010, 26-27 October.

Introduction

Open and distance learning has been better served by its practitioners than by its theorists and researchers. It came in from the cold in the 1960s and its achievements since then have been epitomised by the success of the Open University in Britain and its many siblings abroad. Before that, it was generally known only for the work of commercial correspondence colleges, as a means of training in unglamorous professions like accountancy, at outback schools in Australia, and, improbably, for training Soviet engineers. Alongside its achievements and its new legitimacy it has since generated an extensive descriptive literature, some, often narrow, research and even some theoretical discussion. Its successes are more impressive than the literature while the scale of the work it is now doing within the world's educational systems make it worth asking, from theory and practice, what makes it work and how can it be strengthened. This book is therefore about evidence, ideology, theory, generalisation and practice in education. It looks at these in relation to open and distance learning and draws from its record over the last forty-odd years.

There is a simple, probably uncontentious, argument that links them. Public policy is guided by ideology and ought to be informed by evidence. Ideology is always needed to guide choice between, say, policies of vigorous state activity aimed at redistribution and minimal state policies designed to allow the freest play to market forces. The gathering and interpretation of evidence demands research. Research in its turn depends on sound methodology and on theory or generalisation. (Methodology is itself likely to depend on theory but this may be at one remove: methodologies for educational research often depend as much on theories of statistics, of sociology or of economics as on those of education.) Good research can then have two kinds of outcome: first, it may provide guidance for practice, and second it is likely to stimulate the further development of theory or generalisation to guide continuing research. *Felix qui potuit rerum cognoscere causas.*

Neither research nor the development of policy takes place in a vacuum. Social research therefore needs an understanding of the context or milieu within which a particular phenomenon is being studied. Our understanding of Aristotle, or of the Black Death, or of the British invention of the Open University, is impoverished if we know nothing of 5th century Athens, or 14th century feudalism, or 20th century British social history. The papers within this book attempt to set their accounts of open and distance learning within the context of education and society in the late 20th and early 21st centuries.

The context of the book is personal as well as public insofar as it draws from one individual's experience of working in and around open and distance learning from the 1960s to the 2000s. A personal introduction seems appropriate, even justifiable; the main argument begins again after seven paragraphs.

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The story begins in the early 1960s, a half-decade of hope. Even if the image of Camelot has acquired a layer of tarnish over the years, the election of Kennedy in 1960 felt like a liberation at the time. A president too young to remember the first world war took over from a general and his army of contemporaries whose world views had been

shaped in the first. Despite the 1959 re-election as prime minister of Macmillan, himself a first-war soldier, Britain was soon to have its own revolution of youth and hope. The angry young men had already destroyed and rebuilt our theatre. Macmillan and his gifted colonial secretary Iain Macleod demolished the empire with surprisingly little opposition. The Beatles emerged, initially to a chorus of antagonism and hostility. Harold Wilson, who had been the youngest cabinet minister in generations, and talked of change forged in the white heat of technology, brought the same sense of youth to British politics as Kennedy had to America, when he was elected in 1964. Eisenhower's golf courses and Macmillan's grouse moors were tokens of the past. Memories of the war had retreated. In surprising juxtaposition with our fear of nuclear holocaust these were years of hope, a dawn in which new ideas could blissfully be alive.

They were years of hope and innovation in education. In Britain the Crowther report on education for 15 to 18 year olds had noticed in 1959 that the system was failing many children: IQ tests on conscripts showed that too many of the brightest left school early. Crowther argued that this was not in the national interest and proposed to do something about it. The Wilson government of 1964 backed the expansion of comprehensive schools with its circular 10/65. The expansion of higher education was in its turn legitimised by the Robbins report in 1963 so that 'Apart from electronics and national gas, higher education [grew] faster than any major national enterprise in the 1960s' (Layard, King and Moser 1969: 13).

I was there. From 1961 to 1964 I was assistant secretary to the Associated Examining Board, one of the nine examining boards for the general certificate of education. As the only one not hosted by a university, and with a measure of commitment to children and adults who were off the main grammar-school ladder, it had large numbers of external students. My job meant that I was aware of some of their difficulties; as the person responsible for English examinations (as well as engineering workshop theory and practice, technical drawing and building subjects, to which I once had unhappily to add needlework) I responded to the handful of appeals we got each year from candidates who had failed. For most of these you could find something helpful to say, on the lines that they did tolerably in one part of the paper and fell down in another. But there was a steady minority whose marks were uniformly hopeless but claimed that 'my correspondence tutor said I was doing well'. Publicity about the weaknesses of correspondence colleges (*Which* 1963) and the announcement of the National Extension College (NEC) (*Where* 1963) made sense to me. Both were initiatives of the late Michael Young, social researcher and entrepreneur and author of *The rise of the meritocracy*, who went on later to establish the International Extension College and the International Research Foundation for Open Learning; many of the papers in this collection come from these stables. By 1964 I had become bored with examinations so applied for and got a job with the National Extension College where we set about learning how to do what is now called open and distance learning.

The institutional and personal stories are linked. NEC was set up to meet educational needs that were being neglected by the formal system of education and to do so by combining a variety of media including correspondence, broadcasting and face-to-face teaching, using each medium to complement the other. We did not know how to do it but four principles offered a guide. First, NEC was a charity and took as a starting point the then-obvious argument that profit-making and education were incompatible.

Second, we sought allies and partners. The 1960s *Zeitgeist*, the contemporary state of broadcasting, as educational television was coming to life, and our nonprofit status, meant that BBC and ITV doors were open to us. Third, we wanted to draw from the best educational practice and adapt this to work outside the classroom. And fourth, closely following Michael Young's convictions about action research, we wanted both to draw from relevant experience anywhere in the world and to monitor, research, and report on what we were ourselves doing.

One of NEC's aims was to serve as a pilot for the open university. The pilot was not brought on board and NEC had to navigate the choppy waters of independence which it did with varying success until it merged with another charity in 2010. From the outset it had attracted international interest. We gradually realised that others like Robert Lefranc at the Ecole Normale Supérieure in Paris and Charles Wedemeyer in Wisconsin were experimenting with similar approaches to our own in Cambridge. And we gradually got enquiries from the developing world about our methods. By 1971 the combination of those enquiries, his own burgeoning interest in Africa, and his restless feeling that with the establishment of the Open University NEC was now less interesting, led Michael Young to establish a parallel institution, the International Extension College (IEC), to carry out consultancy, training and research. IEC was not intending to offer distance-teaching courses internationally, a job that we thought should be done by national institutions, but to support them as they did so. Its work, too, feeds into these papers. IEC established a formal link with the (then) department of education in developing countries at the Institute of Education in London which gave it both academic links and a base from which to organise residential courses for developing-country students.

One other institution comes into the story. Despite the dramatic success of the Open University and the volume of research which it, NEC, IEC and others had done, Michael Young, once more, was arguing in 1994 to set up a 'Research Foundation for Open Learning – a look-out tower for open learning' (Young 1994). He raised a grant for a feasibility study, which I conducted, after returning from a post at the University of the West Indies. That study, too, feeds into this volume.

Brian Jackson, NEC's founding director, once argued to me that England was short of people who wanted to go out on to the frontier, tame the animals, dig the prairie. The belief that we could do so, plough the educational landscape and encourage it to bloom with different flowers, may have been a naively enthusiastic product of the 1960s, but, in Pushkin's words, has not entirely burnt out within my soul.

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The papers that draw from this experience explore three closely related themes, each of them introduced by an overview in order to provide more of the context.

The first, and only epistemological, part examines the roles of theory and generalisation as guides for practice in open and distance learning. This provides a framework for the next two sections. It can be seen as an attempt to cut through the pretentious jungle that has grown up round theories of open and distance learning.

The other two parts, about context and evidence, do not divide so neatly and several of the papers have sections that relate to both. Part two is mainly about the context within which open and distance learning takes place and the purposes for which it has been

developed, themselves influenced by social and educational ideologies. Thus it is a surveyor's overview of the landscape.

Part three is about evidence. It draws from documented experience to see what has worked, and what has failed to work, in the use of open and distance learning at all levels from basic education to postgraduate degree programmes. Examination of the evidence is illuminated by the theoretical approach discussed in the first section. This section, therefore, is designed to help towards a practitioner's tool kit. It is intended to be a partial response to Bruner's wish for 'a theory of instruction as a guide to pedagogy – a prescriptive theory on how to proceed to achieve various results, a theory that is neutral with regard to ends but exhaustive with regard to means', though it is more modest in its intentions and more cautious about neutrality in relation to ends than that quotation suggests (Bruner 1966: 31).

The papers in all three parts have not been re-edited, although minor corrections have been made and they have in some cases been shortened. Style and language are therefore unchanged. If the language of early papers looks inappropriate today, at least one aspect of it could be defended with the argument that authors from Rousseau to Nyerere used the term 'man' to embrace humanity. One could be in worse company.

To sum up, the book argues that open and distance learning needs good research, illuminated by theory, robustly based on well-founded evidence. It assumes that decisions about practice, and about the conclusions to be drawn from research, will themselves be shaped by ideology.

In putting it together I have been encouraged and helped by Thomas Hülsmann and Ulrich Bernard who first suggested the idea; we are all grateful to Franziska Vondrlik for her work on the text. I am also grateful to the publishers, shown in the list of acknowledgments, for permission to reproduce work that originally appeared elsewhere. My final debt is to former colleagues at three independent, innovative, and nonprofit institutions whose work and ideas shaped the thinking reflected in the book – the National Extension College, the International Extension College, and the International Research Foundation for Open Learning. This book is not an obituary to the two that no longer survive, IEC and IRFOL, though they deserve one, but can at least raise a flag to the achievements of all three.

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PART ONE:
THEORY AND GENERALISATION

Overview

The four papers in this part explore the relationships between theory, practice and research in open and distance learning. The first two, from the 1970s, are partly reportage, drawing from the experience of the International Extension College (IEC) as it tried to develop a model for rural education in Africa. They retain some of the optimism of the 1960s, with the hope that open and distance learning might help reshape curricula and, by taking education outside institutional walls, shift the relationship between society and its educational service.

The papers belong in this part of the book, however, not because of the reportage but because they open the debates about how we should develop and practise our craft of open and distance learning. When NEC began work in the mid-1960s, there was little to guide us from within what was then described as distance teaching. There had been conferences of the International Council for Correspondence Education, going back to the 1930s, but there was little in their proceedings to help us, particularly as we were trying to move away from the limitations of correspondence education. Holmberg (1960) had produced a useful practical guide on this, and we knew that there was experience from Australasia and from the Soviet Union but all this appeared to be underdocumented. Otto Peters was about to produce work in Berlin on distance education (and came to visit us in Cambridge) and analyse it as an industrial system. But there was not much more. We therefore tried to learn from good educational practice, from the theory that underpinned it, and from communications research. NEC's first course writers saw their task as to convert good everyday educational practice into an unconventional medium. The authors of its English course, for example explained:

> We tried throughout to sustain the idea that no course is really educational unless it has a 'cultural' as well as exam-passing aspect; that we were writing not for captive adolescents, but for free adults, with whose other interests we were, in a sense, competing; that texture and approach would have to be continually varied; that there was a constant need for advice on techniques of study; that the written tutoring must be thorough, patient and helpful; that revision and a sense of progress and achievement must be built into the course; above all that the student should be not only instructed, but also stimulated, entertained, enlivened and encouraged. *(McAlhone 1967: 16)*

The debts to educational and communication theory are evident from the papers in this volume. Dewey could teach educators working at a distance, like those working face to face, about the importance of active learning. Bruner's emphasis on process served as a warning against too narrow an interpretation of what we were doing. His (falsifiable) 'proposition that the foundations of any subject may be taught to anybody at any age in some form' was an encouragement (Bruner 1960: 12). Gagné's categories of learning, and Stenhouse's different scheme, were helpful as guides to instructional designers. Freire and

Peters, writing out of quite different traditions, reminded us of the importance of dialogue, as at a later date did Barnett. Everett Rogers' theory of multistep communication and Trenaman's *Communication and comprehension* could be applied to the design of courses within both industrialised and developing countries.[1] There was, and is, no need for us to look for theories of distance education as if it needed something over and above educational theory generally.

It is in that spirit that the first two papers draw from international experience, from attempts at sound educational practice, and from good theory, to answer severely practical questions about how to design distance-learning courses. Both focus on the role of face-to-face tuition within open and distance learning, emphasising its value for dialogue and its economic significance because of its costs and their behaviour. They draw from IEC's early years, illustrate its ideology, and seek to draw conclusions from the south that can be applied alike to both the north and the south.

The third paper, written a decade later, is more substantial. Starting with a strict definition of 'theory' it sets out a limited set of theoretical and falsifiable propositions about open and distance learning. It looks in turn at three sub-systems, concerned with teaching, with administration, and with evaluation. Following Runciman, it a lso distinguishes between theory and generalisation, arguing that it is possible to generate rules of thumb, or guides to practice, from generalisation even where theoretical propositions are not possible. It suggests that the evidence makes theoretical propositions possible in relation to teaching and to evaluation whereas, in administration, it is more difficult to go beyond generalisation.

The origins of the paper have a bearing on its form. In 1977 IEC responded to international demand for training by launching a short course in distance education offered through the University of London Institute of Education. It was a severely practical course, aimed at the staff of distance-teaching institutions, including elements on teaching and on administration and allowing participants to spend a third of the time working on individual projects. The interest it generated prompted the Institute of Education to offer an option within its master's programme on educational planning and administration in developing countries, which was also taught by IEC staff. But the model that worked well for the short course was inappropriate for an MA and the initial plans, and examination papers, were criticised by the external examiner who wanted greater coherence and a stronger theoretical framework. His demands led to an internal planning paper for the master's course which proposed analysis in terms of the three sub-systems described in Paper 3. Once again, although there was now some literature which claimed to be undertaking a theoretical analysis of distance education, it did not take us far. Paper 3 is the most fully worked out statement of the argument developed at the time.[2] While computer-based, and internet-based, methodologies have added to the distance-educator's armoury since it was published, they do not invalidate its arguments.

One of those was the case that open and distance learning needed to be informed by good research. The fourth paper, drawn from a feasibility study for a dedicated research unit, sets out the priorities for research as identified in the late 1990s. By this time the

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[1] Indebtedness to them will become apparent, particularly in Paper 3.

[2] Earlier iterations of the same argument, published by UNESCO and by the Open University, are in Perraton 1981 and Perraton 1987.

expansion of open and distance learning, and the new legitimacy brought by the establishment of the British and other open universities from 1969 onwards, meant that there was an increasing volume of literature about it. But the paper is critical of the balance of that research and of the literature. Much of it was found to be descriptive, little of it analytical and comparative. And much of it was addressed to practitioners, little to policy makers. More recent analyses suggest that little has changed. The same bias was found in a review of 695 pa pers published in five journals on ope n and distance learning from 2000 to 2008. It classified studies at macro, meso and micro levels and found that only 21 per cent could be classified as at macro level, dealing with issues of: access, equity and ethics, globalisation, systems and institutions, theories and research methods. In contrast 51 per cent were at micro level, dealing with instructional design, interaction and communication, and learner characteristics. The bias towards description remained with 38 per cent of all papers being classified as descriptive (Zawacki-Richter et al. 2009).

The research agenda has changed: Papers 1 and 2 were reporting on experience in terms intended to be useful to practitioners. The development of practical how-to-do it guides to open and distance learning, and the volume of descriptive material, has reduced the demand for more research at that level, although it would be good to have tougher, comparative studies based on sound methodology and informed by theory. But the case for research to guide policy, argued in Paper 4, is as relevant today as it was in the mid-1990s.

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1 Is there a teacher in the system?

This paper was delivered to an Open University conference on correspondence tuition in June 1973, just before the author took up the post of Director of the Botswana Extension College. It drew on international experience to explore the role of face-to-face teaching within distance education and explored the ideas on which the International Extension College was then working.[3]

I am hesitant to deliver this paper for a number of reasons. One of these is the definition which Tony Bates gave last night of a lecture as a coherent argument with evidence cited in support, and I am not certain that this is a single coherent argument. A second reason is that the outside world is looking at the Open University and assuming that it already has many of the answers to the problems in correspondence teaching. However, it's very nice to be at the Open University and find it is itself struggling with the same problems as other people. I think the justification for looking at it from outside is that a new point of view may help one to see some of the problems in sharper focus.

To begin with I would like to explain a little of the background of the International Extension College (IEC), a sister or daughter organization to the National Extension College (NEC). The National Extension College was set up some ten years ago to do two things. The first was to demonstrate that the idea of an Open University made sense, albeit mainly at a lower level. And the second was to provide a service to existing adult students who couldn't get what they wanted out of the state system of education. So over the last ten years NEC has been running courses using correspondence, some of which have been linked with broadcasts, and in all of which attempts have been made to link with face-to-face tuition. Over those years at the National Extension College there has also been a steady flow of requests from countries in the developing world for advice on correspondence teaching, even for use of course material. NEC has never really been able to help with those requests adequately because it hasn't had the funds to do so. But the requests continued to come and NEC provided limited services to a number of people in places ranging from Malawi to Trinidad. But the apparent need for some kind of international body which would advise on distance teaching prompted Michael Young, founder of the National Extension College, and now Chairman of the International Extension College, to set up IEC as a separate organization over two years ago.

At IEC we've got three main functions. The first is to help share information and experience in this world of distance teaching (just for the sake of definition I'm using the phrase ‘distance teaching’ to mean the combination of correspondence plus broadcasting plus face-to-face tuition). This has led us to set up a resource and information centre in Cambridge, and to start publishing a series of broadsheets on distance teaching. It also means that we have some knowledge of what's happening in the rest of the world, and it's on that basis that this paper rests.

The second function is to set up distance teaching units overseas where there's a need for them and where we're asked to do so. The first of these that we've got under way is the Mauritius College of the Air, which is doing some teaching at school level and

[3] Perraton, H. (1974) ’Is there a teacher in the system?’ *Teaching at a distance* 1

offering some vocational courses and, more generally, attempting to relate the techniques of distance teaching to the genuine educational needs of the island. The second of these colleges, to which I will turn later, is the Botswana Extension College (BEC) to which I'm due to go shortly as its first Director. And again, the aim of the BEC will be to use distance teaching techniques in order to meet local needs.

A third function of IEC has been to provide whatever more limited services we can to others working in the same field. This has partly been a matter of providing information, but increasingly is becoming a matter of providing training opportunities for people who are beginning to set up distance teaching units.

Why distance teaching?

Distance teaching has expanded rapidly in the last ten years. I think one can identify four different kinds of reason for its use for out of school education. The first is a concern with greater equality of educational opportunity. Of course the most obvious example here is the Open University where certainly the motivation behind founding the University was to offer opportunities for higher education to people who could not get it through the existing university system. Similarly, an extremely interesting project in Quebec called Tévec (see Lallez 1973 and Dodds 1972) had a fundamentally similar philosophy, although it was working in rather different ways and at a quite different level. The Tévec project had a n umber of different aims. In part it was providing opportunities for adults who had not got as far as ninth grade at school, to go on and do another couple of years of school work, out of school. But its objectives were very much wider than that. It was concerned both to help people who wanted to move out of their environment, and to help people within their environment to change it, and provide them with the tools which would enable them to change it. Thus, alongside teaching in mathematics, French and English went programmes or lessons on the socio-economic conditions of the area. It was set up in a poor and depressed area of Quebec Province, and was intended as a pilot project for a much larger scheme to cover the whole of' the Province. It proved controversial – if you like, it proved so successful that it was too controversial – and as far as I know the successor project has not yet got off the ground. But it did succeed in enrolling a very high proportion of the total adult population in its area, and – I gathered from talking with people there – it was remarkable in the way that it enabled people to begin to do things within their own environment. There were stories, for example, of the mayor of a town being replaced after twenty-five years in office by an unemployed student of Tévec, and of a priest being drummed out of town by a successful appeal to the bishop. These were in part the results of the greater confidence and ease in using the system which people had after they had studied through Tévec.

Secondly, in America there have over the last few years been a number of projects aimed at doing things something like the Open University (see Gould and Cross 1972). Here a number of different motives have been at work. Certainly one of these has been the desire to provide better opportunities for disadvantaged students, especially in the ghettos. But there's more to it than that. One of the subjects of the student protests of the late 1960s was the quality of teaching which they were receiving, and the way in which students were forced into large classes, almost on a conveyor-belt type system, studying subjects which, it was argued, related neither to the needs of America, nor to their own

individual situation. There was therefore very strong pressure to individualize learning, and the aim of many new Open University style projects in America has thus been to move towards greater individualization. There's a sharp contrast here with the Open University concept of devoting a lot of resources to the production of materials because so many students will go through the same course material. The American solution is quite different, aiming at one-off arrangements particularly tailored to the individual needs of the, student.

The third motive for using distance teaching, and the one of greatest importance to the developing world is simply to get more resources to more people, or make more economic use of scarce educational resources. The educational problems of the third world are so staggering in their scale that anything which looks as if it might be cheaper, or more effective, or more widespread than conventional classes, is of immediate interest. And it's for that reason that, for example, most of the developing countries in Africa are beginning to run correspondence units of one sort or another. I return to this point again later.

Finally, it's worth pointing out that one of the ideas behind the founding of the Open University was to demonstrate that the central university qualities have relevance to society generally (see Ashby 1966: 259). I mean here that the spirit of critical enquiry which we're always taught lies behind university teaching and study, is something which is relevant to society generally and not merely relevant within the four walls of a traditional university. Thus to me, the word 'open' in the name Open University is significant, not only in the sense that access is open to potential students regardless of their formal qualifications, but also that the teaching of the University is open to everybody to look at. It's no longer shut up inside an institution.

The developing world

I want to concentrate now on the third of my reasons for setting up distance teaching institutions: trying to do things more economically. Harsh economic facts are the major constraints on educational development in the third world: if distance teaching is no cheaper than traditional methods it won't have much chance of working. The hardest fact of all is probably that the use of teachers, whether they're teaching face-to-face or marking correspondence texts, is the one part of a distance-teaching system which does not allow for economies of scale. In contrast, there are potential economies of scale in using broadcasts or in using correspondence texts. I think therefore the fundamental question which this conference has to face (and it's the same question that I have to face in Botswana) is what we ought to use teachers for as they're the expensive part of the system. I'm not pretending, of course, that there's a single, simple answer to this question which is going to apply all over the world in all situations. But it may just be worth glancing at the major problems that we're going to be up against in Botswana, as I think they may help us towards finding an answer to this kind of central question.

We are going to be faced with a whole range of problems, and again I'll just mention four. The first is whether we can create what I think we might call a non-colonialist educational system which has got to do a number of different things. It has got to meet the local needs for skilled manpower, and these are very severe in a country which had little secondary education until around 1960. It's worth remembering that the British government really only changed its policy towards the three former High Commission territories, now Botswana, Lesotho and Swaziland, around 1960, the time of

Macmillan's wind of change. It was only then, twelve years after the 1948 election result in South Africa, that the British government finally seemed to realize that the three territories would not ultimately be incorporated into what is now the Republic of South Africa. As a result, the secondary and tertiary education system within Botswana is less than fifteen years old. So there is a colossal shortage of skilled manpower, and of people with secondary education, and it would be very easy to justify an institution which was simply meeting that particular need. But at the same time, whatever bit of the educational system one is creating needs to be appropriate for a mainly rural economy, and it probably wants to avoid alienating people from their existing culture. This is familiar ground, comparable to the problems of the unemployed Indian graduates, or the similar problem which may be arising soon in Kenya, where an educational system has been imposed without adequate thought to the real needs of the country. And of course there's possible conflict here between providing an educational system which will produce enough skilled manpower, and providing one which is related to immediate rural needs. I'd argue in passing that there are parallels here with the debate over the last ten, fifteen years in this country, about the relationship between working class and middle class culture, where if we follow people like Hoggart (1958) and Jackson (1968), we've created an educational system suitable for middle class needs and for the middle class managers of society, which cuts people off from the richness of working class culture they have described.

Then, secondly, we need to discover what the real educational needs of Botswana are. This is perhaps the positive side of my first problem, and clearly one of the most difficult. In comparison with that, the third and fourth problems are probably minor ones. The third is how far we write our own materials geared to particular needs, but which may be bitty, scrappy, or second-rate because we're having to do them ourselves with inadequate resources or time, or how far we import material from outside, which may be much better produced but may not fit as closely with the needs of the people we are interested in. Fourthly, we need to know about the different means of communicating with students in a country which lacks the sophisticated postal and telecommunications system that we take for granted within Britain.

Learning at a distance

In the light of that sketch of the problems we see in Botswana, I want to look at one or two more general questions about the nature of learning at a distance. The first point here, I think, is that what we're trying to do is a very unusual human activity, and for that reason it's very difficult.

Learning, for adults and children, is normally a social activity. Picking up the everyday skills of living in a society – counting your change after you've bought something in a shop, getting along with people in a work, family, or leisure situation, the kind of activity which goes on in many schools for much of the time, the actual process of starting a new job – in all these we're not learning as individuals, but learning in a social situation. Even if we think of something like learning from the media, it was suggested long ago by Katz and Lazarsfeld (1955) that learning there tends to be social. The two-step theory suggests that people tend not to be influenced directly by the media so much as by the media through local opinion leaders. If, again, we look at a traditional university, there is a social organization there which is almost certainly of major

importance in learning. There's that old Oxbridge theory that education is something that you get off the walls along with the ivy that grows on them, and that story about the talks into the small hours over cups of coffee as the central part of the university experience. There is an appalling amount of inherent snobbery in the idea, but there is also a germ of truth in it. The germ of truth is that we look for some kind of supporting network within which we learn things. (Thus in passing I suspect that the Americans are wrong in looking to greater individualization as the cure for their universities' problems. I think they may in fact be exaggerating the worst faults of their university pattern – the bittiness of curricula – in an attempt to cure them.)

Now this means that our distance students are in an extremely unusual learning situation if they're studying by themselves; one with which they are unfamiliar as students and we are unfamiliar as teachers. This makes our job difficult and it means that there are few precedents to guide us.

The experience of Tévec is very interesting here. They deliberately tried to use their live tutors or *animateurs socials,* not as teachers in the traditional sense but as people who could provide some kind of support for their lonely home students. The function of the *animateurs* was to provide this kind of artificial network, through which information and help might be channelled, and with the intention that they should be gradually replaced by the existing natural network in which people were living. The idea of building an educational system into the community like this is obviously attractive; especially so where, as with Tévec, the system was designed to help change society and not merely to support it.

But I think there are a number of difficulties for us here. The first is that as the subject matter of most university courses is fairly far removed from the immediate concerns of most communities, our distance students can't learn within a natural network of this kind. I think this means that the euphoria that you get, from all accounts that I've seen, from Open University students at summer schools, is very easily explicable. It's the attraction of getting within the social situation in which students can learn together. I'm sure that sort of euphoria is valuable, but whether it's as valuable as the amount of money you spend on it, I think is a question worth looking at. The second thing which worries me derives from my assumption, or prejudice, that a principal educational aim should be to enable people to make use of their knowledge within a particular social situation. Now if they're studying outside that situation, whether as individuals or within Open University study groups, there is perhaps a greater danger that their learnings will be divorced from the social realities of their life. In other words, we may be producing an ivory tower kind of education even through the non-traditional techniques of the Open University.

I don't think there are any simple answers here, but I think there is one helpful line of approach. I'd like to illustrate it by reference to an institution called Institut Africain pour le développement économique et social (INADES). INADES was set up by a conference of Roman Catholic bishops in francophone West Africa some years ago. It is providing correspondence education in farming for groups of peasants in West Africa. The teaching materials are produced with a strictly limited vocabulary of six hundred words of French. They have now been translated into English by the Food and Agricultural Organisation of the United Nations, and INADES is setting up relay stations outside the Ivory Coast, its main headquarters, in Togo, Cameroon, Ethiopia

and Brazil. The use made of INADES tutors, if that's the right word for them, is highly significant. Apart from marking correspondence texts, their principal job is to go out into the field to make surveys and enquiries and to determine what the agricultural and educational needs are, which are to be met by their lessons. The parallel here with Tévec, where the *animateurs* were concerned with relating the teaching material of the course to the immediate situation of the students, is obvious.

Paulo Freire (1972: 82) quotes Mao Tse Tung as defining the role of the educator to 'teach the masses clearly what we have received from them confusedly'. Now this is what I think the Jesuits working for INADES in West Africa are in fact doing. Going back to Botswana, or the Open University, I think this gives us a possible answer to the question I've been skirting round: what is there peculiar about teachers that we should use them for rather than spending our resources on more thoroughly produced packaged materials?

And I suggest that one part of the answer is that our tutors' central role is to discover the educational needs which our courses are going to meet, and to relate our teaching material to the local, and even individual needs, of particular students. They have a number of other functions, but I think they're related; they have functions of encouraging their students, or correcting them where they've gone wrong, and of showing them how to do things, or new approaches of doing things, or responding to their own new approaches in doing things. Their other key role is to introduce an element of criticism in a system which relies on pre-prepared materials. Unless the individual tutor does this there's a potential danger that our students will rely over-much on the printed or broadcast materials.

What I'm therefore arguing is that the thing which a live tutor can do which we can't mechanize and we can't mass-produce, is to enter into a dialogue with his students. The idea of dialogue is not a particularly new one in education. But the point about dialogue is that it is a two-way process, so that tutors are learning from their students as well as teaching them.

This is why I think it's possible that the Open University may yet be a much more revolutionary institution than has yet been generally suggested. And it's certainly a point of contact between what we hope to do in Botswana and the questions which we are discussing here. Of course the Open University has been criticized in a naive way because of the proportion of its students who are or are not of working class background. The argument is getting very sterile. But I think it's also true to say that while the Open University courses look unusual to us in, for example, their inter-disciplinary approach, I suspect that looking at them from outside Britain, or looking at them from ten years hence, they will be seen very much more clearly as lying within the normal academic traditions of this country than we imagine them to be today. In exactly the same way, if we look back at the last spate of curriculum development in, say, the new universities like Sussex a decade ago, we can now see that there were really relatively small changes made in the university curriculum.

This is where the notion of dialogue may be leading the Open University into something which is new and quite different. If we could develop a university curriculum which was directly based on the local and community needs of our students and their interests, we would be doing something which I think has never been attempted before, which

would start knocking down some of the barriers between the educational system and the ordinary world in which most people are living. It's what in a much more humble way, we have to do in Botswana if we're to create an educational system which is different from the colonial one which fails to meet genuine educational needs over half the world.

Now I'm not suggesting that any of this is easy or that we should throw the whole of the university curriculum out of the window, or that we can readily switch from the fairly orthodox academic teaching of this university (or any other) into something quite new. What I am suggesting is that it is in this role of creating dialogue that we find the one job which necessitates live tutors and so the one job for which we should use our expensive teachers. Their function is to help our students, and in particular to help to define the educational needs which we, through packages or anything else, can try to meet.

Finally, two points. First, none of this is easy. David Hawkridge, Director of the Institute of Educational Technology, summed up the difficulty by suggesting that both the Open University and the International Extension College, being creatures of the 1970s, are trying to be both prescriptive and responsive, but I think it's probably the right way ahead and I'm sure it's worth trying, whether in Botswana or in this country.

Secondly, while what I've been suggesting may sound dangerously harebrained and unrealistic, I think all the elements, which I've suggested might lie at the heart of a distance-teaching system geared more closely to students' perceived needs, have already been tried somewhere in the world. What we haven't got is any precise formula and we haven't got an example of the precise mixture of elements which I've been discussing here. But the notion of using tutors to define educational needs has been central to INADES. The idea of using tutors to link teaching to the local community was crucial within Tévec. The notion of devising an educational system on the perceived needs of a particular community, has been central in a number of the American projects. And the idea of regarding the creation of a dialogue as a central function of tutors, has been with us since Socrates.

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2 Two-way communication within a distance-teaching system

This paper was drafted in Botswana in 1975 for the conference of the International Council for Correspondence Education, though it was not presented in person. It continues to explore the ways and means of doing effective distance education and to draw some general principles, largely from experience gained by the author and others in Africa. Naturally it reflects the expectations of the time and with hindsight might have benefited from more scepticism about the role of the expatriate. But the methodological issues, and concerns about communication and about face-to-face support, have continuing importance.[4]

Education is like sex in two ways. It's easier (as well as pleasanter) to do it than to write about it with conviction, and it ought to be enjoyed by both parties. Perhaps it should be enjoyed *equally* by both parties – the educator and the educated. Certainly both parties should be contributing to it. It's long been assumed in adult education that the class, as well as the tutor, will bring ideas to their meeting or lesson. And the better adult educators have long been intent on linking the subject matter they want to deal with to the interests of their class. The same can be true at much humbler levels: the Chief Inspector of Education for Kano State in northern Nigeria stressed to me the other day how important it was in infant and primary schools to build on the experience which the children bring to the classroom. But this presents particular difficulties to the distance educator. By definition, and for sound practical reasons, much of our teaching material is prepared in advance. The same material is sent to tens or hundreds or even thousands of students, with scant regard for their individuality. What can we do about it?

Two Ideas

This paper rests on two assumptions; there isn't space to justify them at length but they can be summarised.

The first proposition comes from Paulo Freire who writes 'Conscientization refers to the process in which men, not as recipients, but as knowing subjects, achieve a deepening awareness both of the socio-cultural reality which shapes their lives and of their capacity to transform that reality' (Freire 1972: 51). In other words, one of the aims of education is to enable people to change themselves and their environment. This aim can be achieved only if we treat them as subjects, to use Freire's term, as people with control over their own lives and their future and with a right to that control. It cannot be achieved if our function is simply to provide them with information which we, as educators, have decided is good for them. (It is also an aim which we are far from meeting in the English educational system, at least, today. Eric Midwinter, then in charge of the Educational Priority Area in Liverpool, used to explain graphically how, in a proper concern with participation, the Liverpool planners asked the people living there how they wanted their street to be developed and changed. But the attempt at

[4] The paper was written in February 1975 for the conference later that year and originally appeared in G. Granholm (ed.) (1976) *The system of distance education*, Malmö: ICCE.

participation was a failure, for the people living there hadn't been taught how to begin to answer questions like that.)

The second proposition relates directly to the main theme of the conference: that it is helpful and illuminating to regard education as a system. I set out one possible model for the process of developing educational materials on the next page.[5] I hope the diagram is self-explanatory. It suggests that, to make good educational decisions, we need to start by considering educational needs, and from them go on to consider objectives, and the resources available to meet them as well as the constraints involved. The definition of objectives, resources and constraints enables us to define the subject matter – a process which, following Freire, necessarily involves dialogue with our students. That much is all straightforward, in theory though not in practice. It's the other stages of deciding between alternative ways of meeting the same objectives, or of choosing the selection criteria by which we will choose one way rather than another, that seem to me to be particularly difficult, and particularly neglected questions. And it is in precisely these stages that we come up against the difficult questions about two-way communication in distance education. If we believe with Freire, that dialogue is central to education, then in thinking about methods and choice of methods of helping people to learn, we have to think about dialogue and feedback. And that is peculiarly difficult when we are talking not of a live teacher but of the use of prerecorded teaching material. It's also peculiarly important if we believe that traditional methods cannot alone solve the world's educational problems.

Go home Milton Friedman

Before going on to consider more interesting questions, let's just close an economist's bolt-hole. In my SELECTION CRITIRIA box I've suggested that we have to define the criteria by which we will choose one way of teaching rather than another: And I've suggested this is difficult. The easy way out, is to go for cost-effectiveness or cost-benefit analysis – to say we will choose the method that gives the best results at the lowest price. Obviously this is something we need to think about. But it's not a good enough solution by itself for two related reasons. First, it's often not possible to price some of the benefits we want to achieve: economics are always liable to undervalue, or disregard benefits like that, even though as educators we feel they are of major importance. The second point is more fundamental. Titmuss demonstrated in *The Gift Relationship* how market values produce appalling results in the social service: the values of the market place are intrinsically likely to be different from those that illuminate any educational enterprise. There isn't a place for private profit making in education. (The sad demise of Penguin Education suggests that this general truth may extend as far as educational publishing.) And so, we cannot simply say we will take the cheapest effective solution as a way of avoiding the dilemmas of choice.

[5] There is a fuller discussion of the process of choosing between different media in 'Techniques for teaching at a distance' in part three.

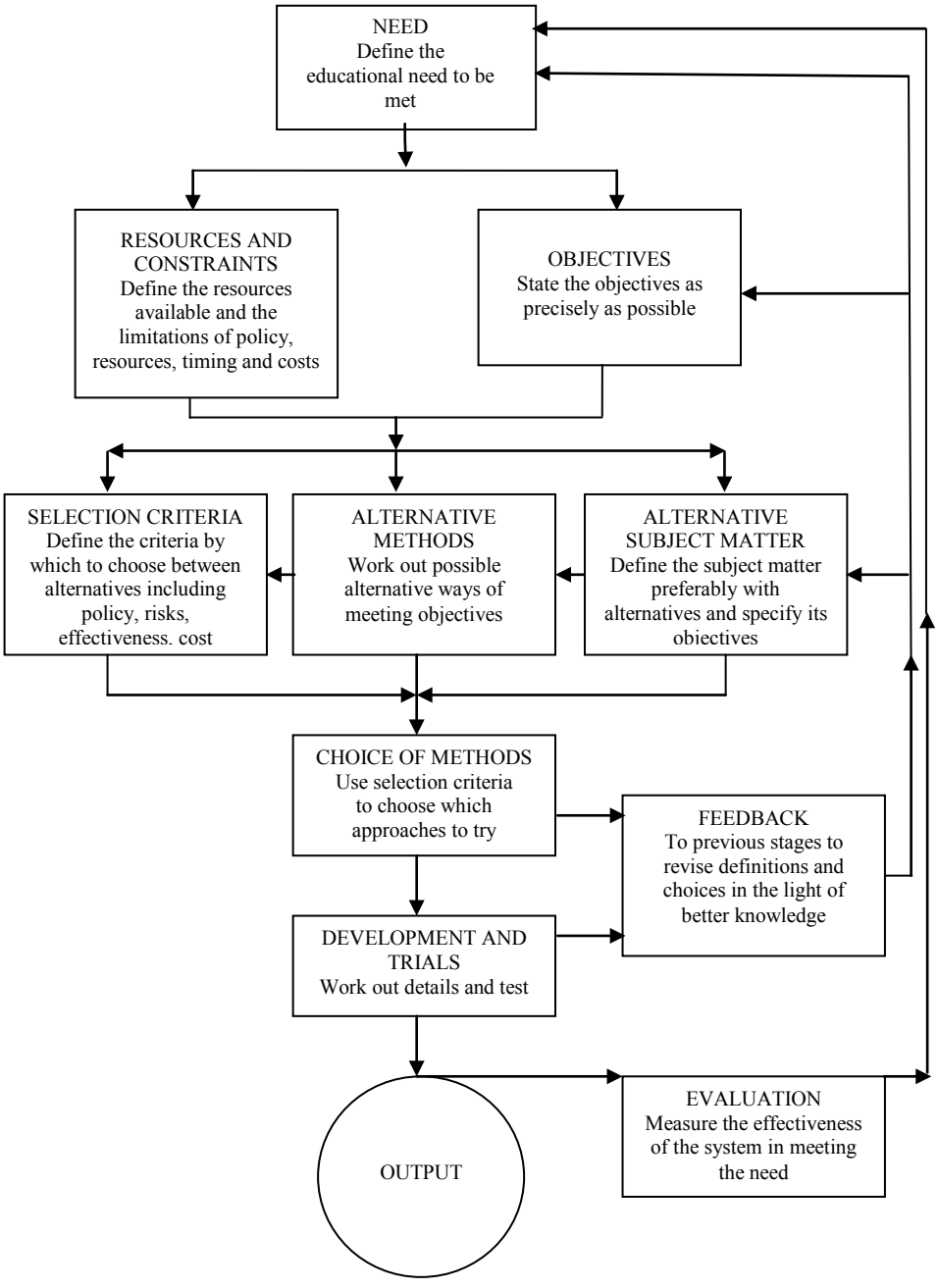

Figure 2.1 A systems approach to educational planning

So much for theory. Let's get down to the practicalities of distance education. How can we build two-way communication and dialogue into our contact with students? I want to suggest various ways of doing so which derive from recent work in distance teaching in the third world. And I want to concentrate on nonformal education. I hope that the conclusions from this examination will also be of relevance to the wealthy countries of the world and to formal education. I believe they are. (For those whose interest is confined to formal, examination, courses, there are thorough discussions of this theme in the Open University handbook on course tutoring (Grugeon 1973) and in the first issue of their journal *Teaching at a Distance*.)

Three Distance Teaching Projects

The Canadians invented rural radio study groups at the tail end of the great depression. They were followed in turn by Ghana, India and other countries and, in due course, the same ideas were picked up in Tanzania. With its commitment to socialism and adult education, Tanzania was forced into considering unorthodox educational means in the late 1960s. Since 1967 Tanzania has run a number of pilots, and three major study group campaigns – on the 1970 elections, on development, and on health.[6] Other campaigns are planned. The most recent – the health campaign in 1973 – is estimated to have reached two million people. This is how they worked.

For each campaign, radio broadcasts were put out at weekly intervals over a period of two or three months. (They did not try to keep groups in existence over longer periods as had been done with farm forums elsewhere or with the INADES groups at present.) Radio groups were formed, and leaders for the groups were trained. Each group was provided with a handbook or study guide which told group leaders how to run their group and reinforced the teaching material contained in the broadcast. Some of the groups involved in the campaign were formed for that purpose; others were existing adult education groups. In either case, there was a network of organisations through which groups could be formed and supported, using both the TANU party organisation and school teachers. (Teachers in Tanzania now carry a responsibility for adult education as well as for teaching in school.) In the health campaign, groups were urged to follow this sequence each week.

1. Assemble before the programme started.
2. Listen to the twenty-minute radio programme.
3. The group leader, or someone else in the group who could read, read aloud the appropriate part of the handbook.
4. The group discussed the material presented in the broadcast and the handbook.
5. When appropriate, the group would agree what they could do to prevent the disease dealt with that week.
6. Some time during the week after the meeting, members of the group would take the actions agreed on either in their own homes or communally.

The point of the discussion after this broadcast is stressed by Hall and Dodds:

[6] I owe most of this section to Hall and Dodds 1974.

> ... it is necessary to remember that the pattern in other adult education classes in Tanzania is that the adults' participation is usually in the form of repeating words or sentences, as most of the adult education in rural areas is literacy education. Repetition of words or phrases is not the kind of participation that *Mtu ni afya* [the health campaign] has encouraged. Rather it has been the kind of participation that should take place in other *ujama* village meetings, where people are accepted as all having something substantive to contribute to the discussion at hand. *Mtu ni afya* group discussions are ideally like the lively discussions held in a village when a new project is about to be undertaken, not just a repetition of what a teacher standing in front of a class says.
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> *(Hall and Dodds 1974: 38)*

Clearly the Tanzanian model campaigns are not the answer to all educational problems. Although feedback from the study groups was used – both for question and answer sessions in the radio programmes and for evaluation – there was not an adequate feedback system, either for dialogue between the makers of the material and the students (in the Freirean sense) or for clearing up misunderstandings of the teaching material. But, as the quotation shows, there was dialogue within the village.

I now want to look at two much more modest projects we are running at the Botswana Extension College. The College was set up, by the International Extension College with the Botswana Ministry of Education, to run distance-teaching courses in Botswana. Our brief was to explore how far distance teaching could help solve Botswana's many educational problems. And, as the Botswana Government is firmly committed to a policy of rural development, it is appropriate that much of our work is concerned with rural education.

Botswana is a large and sparsely populated country. Most of its 800,000 people live in some 400 villages which are scattered over an area as big as France. Until the happy discovery of vast mineral wealth, soon after independence, the country was poor and dependent almost entirely on cattle production and subsistence agriculture. The economy was boosted by a grant in aid from the British government. Today Botswana is wealthier and has worked out a policy for village development, in an attempt to increase the standard of living of the Botswana people as a whole and to ensure that the mineral wealth does not benefit only the towns. One of the mechanisms Government has created is to invite each village to elect a Village Development Committee (VDC): the function of these committees is self-evident – to develop their villages. They are democratically elected bodies, nonpolitical in composition, and grafted on to a traditional political and judicial structure of chiefs and headmen meeting with their villages in *kgotla*. But, until now, it has not been possible to train members of village development committees – to advise them on how a VDC should work, or to suggest what projects they could undertake. At the request of the appropriate Ministry, the Botswana Extension College has therefore launched a project to teach VDC members about their own job, and about work their VDC can do. The course consists of four elements: a Village Development Committee handbook, which is a basic how-to-do-it book, published by the College in English and Setswana; a radio series – basically a soap opera on two imaginary VDCs; a series of pamphlets relating to the radio programmes and providing for feedback to the College; and a variety of different arrangements for face-to-face contact with participants. We are, for example, arranging for a College staff member to visit a number of groups. Other group leaders have been contacted at a district conference, while in other cases we are making contact with VDCs interested in following the course by working

through local community development or agricultural extension workers. As in Tanzania, it is our intention that several members of a VDC – perhaps the whole committee – will follow the broadcast and discuss it together.

In working out the course, we have followed advice from Government about the needs of VDCs but have tempered this by repeated visits to committees and District meetings of those concerned with village development. The course is being launched in two phases: a pilot, where we are concentrating on only some thirty villages before revising the materials and offering it on a national scale. And we see the present course as only the opening of dialogue between the College and its participating VDCs. One of the aims of the printed material we are producing is to discover what further help VDCs want. We plan to go on and produce, not merely a general handbook for VDCs, but specific handbooks on particular subjects of interest to them. The first of these may be on basic ways of providing village water supplies and making better use of water – a literally vital subject in a semi-arid country. But we don't yet know what the other subjects could be: the definition of the subject matter for the later stages of the course may follow the launch of its first stage. The participants will themselves define what we should teach them.[7] The course material has been designed so that it can set up a dialogue between the College and VDCs in which they can tell us about their needs and problems. This dialogue provides the feedback loop as far as my first stage – the definition of educational needs.

Our VDC course is, by definition aimed at community leaders. We have also been concerned to see how one can use distance teaching methods for reaching ordinary people in villages and are setting up a Villagers' Better Living project. This is concentrating on vegetable growing, child care, and cookery and nutrition. Again, it is using study-group methods, with groups of people following radio programmes on these subjects, discussing them, and going on to take appropriate action. It is too early to say how successful it will prove to be: I mention it here because of the way we chose to set it up and the use we made of our most valued resource – people.

One of our aims was to see how closely one could tailor a distance teaching course to the felt needs of adults. The first stage in developing it was, therefore, to send one of our college staff (a sociologist who had spent the previous months learning Setswana) together with a field assistant into two villages to try to define educational needs by participant observation. Only after lengthy visits to them, did we choose the subject matter. In the pilot phase of the course, we are building on her contacts in those villages to set up the study groups participating in the course. And we are using the same people to take part in the linked radio programmes. It remains to be seen, of course, how far the villages we chose prove to be typical of Botswana and how far dialogue with them alone enables us to meet educational needs more generally.

This account of three projects is deliberately sketchy. The Tanzanian experience is already well-documented. Ours in Botswana is at too early a stage to publish any firm conclusions. And none of this is easy: in particular dialogue which aims at choosing and defining subject matter has caused us especial difficulty. But I think there are enough

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[7] Close students of Freire`s footnotes will recall his quotation from Mao Tse-tung which sums up this idea by defining the role of the educator as to 'teach the masses clearly what we have received from them confusedly' (Freire 1972b: 82).

hints from these various bits of work, and from others, to suggest a way through the dilemma of reconciling the need for dialogue with the advantages of the mass production of teaching materials. Back, then, to theory.

Types of Communication

Our experience in Botswana, and that of colleagues elsewhere, suggest that there are a variety of different ways of ensuring that a distance teaching system does allow for two-way communication. These are set out in Figure 2.2: it omits a number of theoretical possibilities (contact between study groups, or the use of radio transceivers for example) which are of greater potential than immediate importance.

Between participants and teaching staff	*Among participants*
1 In writing - Study material prepared by teaching unit - Worksheets sent by participants to unit - Comment on them sent back	1 Face-to-face discussions and activities
2 Radio - Broadcasts put out by unit - Recording of participants used in broadcasts	
3 Face-to-face - preliminary visits by unit staff to define educational needs and subject matter of course - visits by unit staff while project is running - contact with group leaders at leader training sessions - contact through adult educators, agricultural demonstrators or other extension agents	

Figure. 2.2 Possible ways of two-way communication

Two-way communication through the post is familiar enough in correspondence education. I want, therefore, to concentrate on the use of radio, and arrangements for face-to-face communication. Experience has shown that face-to-face communication, of a variety of different kinds, can be designed as part of a distance-teaching system. And much of this face-to-face contact does not demand the physical presence of staff members from a distance teaching unit, or indeed of teachers, in the traditional sense at all. Some face-to-face contact between the teaching unit and some of its students is necessary for the unit: it is not necessary for the students, if dialogue can be built into the system in some other way.

Radio Study Groups offer one way of doing this

But the problems of planning for two-way communication remain severe. In many nonformal courses, for example, some of our students will be nonliterate and we must plan to communicate also with them. The Tanzanian study-group methods, where a group secretary responds to the teaching institution, offers one possibility, on which we have modelled some of our work in Botswana. Radio also plays an important role here. It allows for rapid correction of already printed material. And radio programmes can incorporate feedback elements from students. But there are very severe problems of timing. Even if you are blessed with a radio organisation which allows you to make programmes at the last minute other problems remain. Few countries have a communication system so good that you can get feedback from many people in enough time to make programmes on a weekly basis. If you accept feedback from the nearest, or more closely monitored study groups, then you may be distorting the whole pattern of programmes. Similarly, there are problems of scale: with present-day techniques, we can't have radio programmes with feedback from more than a handful of students. We obviously need two-way communication with potential students before a programme starts in order to define student needs. But this two-way communication is inevitably only with a sample of the population. It neither allows for two-way communication with everyone, nor ensures that programmes do meet the needs of the universe of students at whom they are aimed.

Radio study groups have one other theoretical drawback: they do n ot allow for the correction of errors of understanding which may arise from the printed or broadcast material, where the subject matter is relatively unfamiliar to the group. I know of little research which would indicate how far this is a r eal drawback. The educational television project in Colombia found that the students there often did as well with group discussions among students alone as in group discussions led by a teacher.

But the study-group method has particular advantages and, after this catalogue of difficulties, it's important to stress them. In much nonformal education we are concerned to help people change their environment, or their part in the environment. This often necessarily involves group activities: the whole raison d'être of our Village Development Committee course is to enable villages as a whole to change and improve their own situation. Similarly, changes in farming practice often necessarily involve whole groups of farmers and not simply individuals. (Indeed I would argue against the assumption of a necessarily close link between correspondence education and ‘individualised learning', that most learning in the world is a group activity and that the case for *not* doing things on a group basis is the more difficult one to sustain.) But apart from stimulating group activity, on the Tanzanian health campaign model, group study has two other vitally important advantages. First, it enables members of a group to help each other clear up misunderstandings for each other. Second, by allowing dialogue between them it allows them to bring their experience to bear on the subject matter being studied. Learning can stop being something provided by a central organisation and become something involving participation by those involved. We are moving away from the bucket theory of education, which sees the teacher as holding a bucketful of knowledge to be poured into the empty heads of the students, by the very fact of having group meetings as a planned part of the system.

The Problem of Choice

I suggested earlier that the difficult questions in educational design lie in choosing between alternatives, and defining the selection criteria by which we make such choices. This analysis of two-way communication may suggest an answer. If we accept my first proposition, that dialogue is of the essence of education, then perhaps our touchstone in choosing methods is to ask which methods make dialogue most possible, or most useful. When we consider different types of dialogue, it may be appropriate to bring back the economist I banished earlier. In practice, face-to-face contact is the one element in a distance teaching system where we cannot benefit from the economies of scale. And so, our second guiding light in choosing between methods may be to decide what is the most important job to be done by means of face-to-face contact.

One particular answer to this question raises some fundamental questions about learners and teachers. One of the things which we cannot mass produce, is the discovery of student needs and interests. If we are serious about basing an educational system on them, then one of the jobs that must be done by face-to-face contact is the preliminary work of contacting potential, or sample students and talking, living and being with them to find what their needs are. (The RFD project in Wisconsin found little correlation between the felt educational needs of their, participants and what government agencies in the state thought they were.[8]) This is a job which Freire saw as being a central, and desperately responsible, one for adult educators and which he commended particularly to adult education students – the professionals of the future in this field – in Tanzania (Freire 1973: 9ff). Now, if the function of the educator is first to go out and discover what needs to be taught, and then – in a distance teaching system – to produce materials so that the necessary teaching can be offered far and wide, even where there are no teachers, then we are changing his function radically. He has become a writer, and a student …. a student of people's educational needs. The role of the teacher – in stimulating dialogue, in encouraging students, in supporting study groups – has passed to a variety of agencies, some of them the group dynamics set up by the study groups themselves. His role in providing information, and guidance in using it, is something which need not, inherently, be done in a face-to-face situation. And so, the distance teaching system I am arguing for may result not only in the liberation of the students, from the sort of dependence which Freire rightly sees as a paradigm of the colonised situation; but in the liberation of the teachers, from the tyranny of being in an equivalent colonising position.

I'm groping for an answer here. It would be stupid to pretend any of this is easy. Nor would it make sense to say the ideas set out here are so clearly developed, and have so much evidence to support them that we can set up an alternative, distance-based, nonformal educational system tomorrow which will cure half the world's ills. Life isn't like that. But I suggest that, through a multi-media system – which is subtle and intelligent in the use of its scarcest and most precious resource – people – we can offer a better education to more people than we could using traditional methods alone. It does depend on a multimedia system. Old fashioned correspondence education won't do. If it isn't dead already, let's kill it off as soon as we can.

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8 Personal communication

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3 The roles of theory and generalisation in the practice of distance education

This paper was presented at a seminar at the German Fernuniversität in 1986 and subsequently published by the university.[9] *It draws both from experience in running and researching distance education and from extensive discussions with colleagues at IEC and the Institute of Education about appropriate frameworks for teaching about it. The paper is more general than the two previous ones and seeks to set out what can, and cannot, usefully be said in terms of both theory and generalisation about teaching, administration, and assessment within distance education or open and distance learning, a term then beginning to come into use*

Introduction

I'd like to start by putting my philosophical cards on the table, setting out the assumptions that lie behind this paper. I do this not only as a necessary foundation for it but also because these are not what I want to talk about today.

To begin with, my interest is in solving problems and I see the role of theory as one of helping to solve problems. The fundamental problem lying behind the paper is this: 'how can we best enable people to learn at a distance?'.

Next, I see merit in taking a narrow view of theory in the sense of, 'a set of hypotheses related by logical or mathematical arguments to explain and predict a wide variety of connected phenomena in general terms' (Urdang 1979), seeking theories that can be falsified, and that allow predictions.[10] While the acceptance of this narrow, Popperian, meaning of the term places limits on what we can class as theory, it makes any theoretical statements we do accept that much more powerful. At the same time we need to avoid what Lakatos calls 'naive falsification' and instead seek 'sophisticated methodological falsificationism'; the hope is not to find a single refuting example to set against any theoretical proposition but from any such examples to build a 'new theory [which] has some excess empirical content over its predecessor, that is, ... it predicts some novel, hitherto unexpected fact' (Lakatos 1978: 33).

As we cannot – or I cannot – develop theoretical statements about all the interesting problems in distance education I also see merit in seeking generalisations that fall short of theory. I borrow this distinction from Runciman's (1983) discussion of the relations between theory, generalisation and practice in the social sciences which rests on an analysis of the nature of understanding. He distinguishes between three meanings for the term 'understanding'. In its first sense, understanding answers the question 'what is happening?' and, in his terminology, concerns reportage. In the second sense,

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[9] Perraton. H. (1987) *The roles of theory and generalisation in the practice of distance education (*ZIFF Papiere 67) (Hagen: Zentrales Institut für Fernstudienforschung)

[10] Using the word in this limited sense, much of the published discussion about the theory of distance education is not theoretical at all; it does not lead to refutable propositions. I would, to take one example, now argue that only part of the discussion in Perraton (1981) is strictly theoretical. I would also argue that the variety of phenomena with wnich we are dealing in the practice of distance education is such that it is misleading to seek a single, all-embracing, theory.

understanding demands an answer to the question 'why?' and is concerned with explanation. In the third sense it involves answering the question 'what is it really like?' and so requires description. Thus, if we examine a picture of Latin American students of a radio school, learning with their texts and their radio, we can ask 'what is happening?' and expect reportage, such as an observing newspaper reporter might give. If we go on to ask 'why' we may get a range of answers, some concerned with the sociology of Latin America and some, our major concern here, explaining why people can learn at a distance. We may, however, want a different sort of account and seek the detailed description that alone can tell us 'what is it really like' to be the *campesino* student we see in the picture.

Runciman goes on to claim that in its first sense, in the realm of reportage, we can produce generalisations but not theories; when we ask 'what is happening' we are not asking a question that leads directly to theory. It is only in the second sense of the term 'understanding', where we are seeking explanation, that we can develop falsifiable and predictive theoretical statements. I will, however, argue that we can legitimately derive heuristics, or rules of thumb as a guide to practice, from generalisations as well as from theoretical statements and also that the development of generalisations out of reportage can be the first step towards the development of theory.

One final philosophical view and we can get back to distance education. I see education as being multi-faceted and find Stenhouse's categorisation particularly useful. He distinguished between four types of educational activity: training, where we are concerned with skills; instruction, where we are concerned with information; initiation, where people are being initiated into social norms; and induction, where people are being introduced to thought systems enabling judgment (Stenhouse 1975: 80ff). If we are to solve problems in distance education – in helping people learn – then we may need to concern ourselves with all four types.

Enough of philosophy and presuppositions. The problem that sparked off the paper was more modest than my broad concern with the problems of learning at a distance. It derives from work I did at the International Extension College with the University of London Institute of Education when we were seeking a structure for teaching an MA course on distance education that would be coherent and would help towards identifying generative concepts (cf. Bruner 1962: 121). The structure proposed here served that purpose and may also be of value in helping with the practice of distance education. To provide a structure for analysing some of the interesting problems of distance education and so seeking answers to the starting question, we can examine distance education in three ways, analysing learning at a distance, analysing the administrative structure which it needs, and analysing the methods of assessment which lie behind, and permit, answers to the question. We can regard this process as one of examining three systems which are related as in figure 3.1. In examining the teaching system we know that there is a black box labelled 'administration' which we do not examine at this stage, and a further black box labelled 'assessment' which contains within it certain presuppositions and techniques which we use in analysing learning without examining them. Similarly, in examining the process of administration in distance education we treat as black boxes both the assessment system and the teaching system which were previously the focus of our attention. And, in looking at assessment, we do not examine in detail the learning and administrative issues examined in the other two systems.

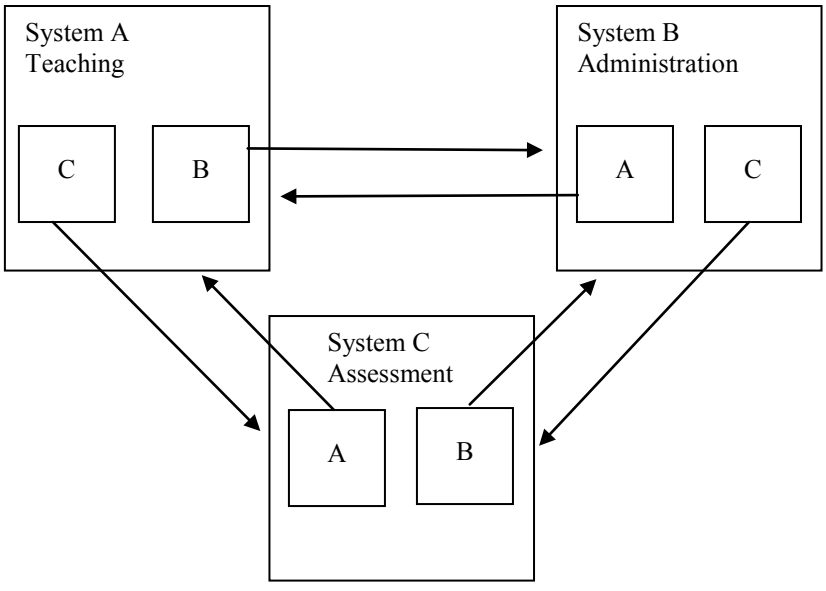

Figure 3.1 Three related systems for analysing distance education

The teaching system

In discussing teaching, we can start with a broad question such as 'how do people learn at a distance?'. Theories are of value if they can answer such questions as, 'what sort of media should we use? how much face-to-face learning is necessary? how do we design materials?'. This paper does not develop a fully fledged set of answers to such questions; rather the aim is to suggest the kind of answers that we can expect to them and so the kind of theory that it is useful to seek.

Research on learning, much of it laboratory based, has often produced statements which suggest that process (x) leads to more effective learning than process (y). The five theoretical statements about distance teaching, discussed below, are of this kind; their practical value, if they are sound, is that, in this domain, we can make properly theoretical and falsifiable statements. Five such statements illustrate the kind of theory which we can expect and use as a guide in planning for effective learning.

The first statement was made in a specific form by Trenaman who compared the presentation of information through radio programmes, television programmes and print, examining differences between the media and between the backgrounds of the adult learners who were his subjects. He classified them in terms of their education and types of occupation, grouped together in 'occupation. grades'. He found that,

> The outstanding feature of the analysis is that differences between one programme and another, and differences between the occupation grades are very significant indeed, and account for more variation than any differences between one medium and another. *(Trenaman 1967: 40)*

This finding reflects earlier work which compared radio and face-to-face education (cf. Cantril and Allport 1935: 171-2 and Woelfel and Tyler 1945: 26-7), and foreshadowed studies of television which produced similar findings of no significant difference (Chu and Schramm 1968). We can state the theory of media equivalence baldly: *communications media do not differ in their educational effectiveness.*

In making the statement, it is assumed that the term 'educational effectiveness' leaves out of account questions of motivation which we consider below. Thus one might expect the theory to be developed further by reference to differences between individuals in their preferred method of learning and in their interaction with different communications media, or perhaps by reference to different types of learning.

The practical importance of the theory is, as Chu and Schramm forecast, in liberating the educator to choose a medium according to the convenience and needs of the learners, and in response to the costs of the alternatives.

The next theoretical statement might seem to be in conflict with the first. It claims that *distance-teaching programmes which use a combination of media are likely to have a higher successful completion rate than those which use a single medium.* The contradiction is more apparent than real as different combinations of media may have differing effects and different media can affect motivation, as opposed to learning, differently. Moreover, 'short of an absolute science of learning and instruction ... some justification exists for a "shot gun" approach. To the extent that our choices of media are faulty, use of several media in redundancy may be to some extent justified' (Briggs et al. 1967: 14). The practical advantages of combining broadcasting with print and with face-to-face learning was a starting point both for the National Extension College and for the Open University. The reasons for it lie in the power of broadcasts to stimulate, the power of face-to-face tutoring to relate subject matter to individual response, and the power of print to give permanence. And yet, we remain short of hard empirical evidence to add weight to the theoretical statement and further data to refine the theoretical statement would be valuable.

Theories of distance education need to consider broader issues than the choice of medium; among these are the roles of two-way communication. Such two-way communication has at least five functions: to encourage, to correct errors, to signal difficulties on the part of the learner, to inform those who prepare educational materials, and to allow learner and teacher to take off in directions which had not been forecast. This last capacity is, for many educators of unique value and importance, lying at the heart of the educational process if it is to be worthy of the name,[11] the term 'value' reminds us that we will come back to these issues in the assessment system. In face-to-face learning all types of two-way communication may be achieved at about the same time, and using the same channel. In distance education, in contrast, we may need to organise different channels of communication for these different purposes.

Feedback in distance education, carried by one channel or another, generally takes one of two forms; it is either impersonal and immediate or personal and delayed. You may find the answer at the back of the book, or in thirty seconds time from the radio tutor, or you

[11] Peters sees this as the essential feature of higher education where 'teacher and taught … are both participating in the shared experience of a common world' (1972: 104). For a thinker like Freire, it is the essence of education at its most basic (cf. Freire 1972).

may get an individual response from your tutor after a delay of some days or weeks.[12] The evidence for the success of distance education, such as it is, confirms that a combination of the two types of feedback can lead to effective learning, although the last of the functions identified is more difficult to achieve than in face-to-face education. The success is qualified, too, in that delays in feedback can inhibit learning (cf. Rekkedal 1983: 217). We could thus sum up that *a combination of immediate and delayed feedback can lead to effective learning but there is a significant negative correlation between measures of effective learning and the length of the delay.* From this statement we would like to derive more precise and limited ones, about the circumstances under which delay and impersonality are more or less important. It seems reasonable to assume that there will be a contrast between different subjects, or different kinds of educational activity, and more precise statements are needed to help, for example, with the design of effective teaching in mathematics as compared with languages.

The next theoretical statement claims simply that *face-to-face tutoring, or an alternative form of simultaneous two-way communication, increases the effectiveness of distance education.* Again, the statement could usefully be refined, perhaps towards suggesting that the need for face-to-face tuition varies inversely with the motivation and sophistication of the learners, but this will advance us significantly only if we can put some quantities to the terms 'motivation' and 'sophistication'. As it stands, the statement seems to be in accordance with the evidence and can serve as a starting point for more detailed and practical discussion about tutorial work. When coupled with statements about the cost behaviour of distance education it takes us to the heart of the distance educator's dilemma: how to reconcile the educator's demand for more and more face-to-face contact with the populariser's desire for ever larger audiences and the budget controller's desire for ever lower unit costs.

So far we have been concerned with broad issues about the role of various media in teaching at a distance and the significance of two-way communication. There remain, however, problems of instructional design: how do we ensure that printed materials, or broadcasts, are effective. Here there is a considerable literature whose significance is, in part, that it has generated theoretical statements of these kinds:

> personification, dramatisation and a story form, then, assist understanding at the lower levels *(Trenaman 1967: 109);*

or, on teaching by radio,

> reinforcement by being informed of the results increases the rate of learning. (In most cases the radio teacher asks the children to give oral or written responses, and immediately thereafter gives them the correct answer.) *(Galda and Searle 1980: 4).*

Holmberg (1985) has put a number of statements of this kind, on both course design and tutorial support, into a theoretical context. But far more of the literature is in the form of practical guidance on writing or making broadcast programmes rather than of theoretical statements. Many institutions have produced their own internal guides to course development and there is now a considerable number of more general guides (e.g. Holmberg

[12] There are important exceptions to this including occasional face-to-face sessions, telephone conferences and the use of satellite communication, as in the University of the West Indies UWIDITE project. But it is necessary to examine the power of distance education where such personal, immediate, two-way communication is not available if our theories are to be useful under more usual circumstances.

1960, Perraton 1973, Romiszowski 1981, Bååth 1983). In some cases the advice given is severely practical and, while based on empirical evidence and on hunches of what works effectively, is not placed in any theoretical context. In other cases writers have tried to relate the particular of writing correspondence courses to the general views of educational theorists such as Ausubel or Gagné. From the literature one can derive a variety of properly theoretical statements which respond to the problem of students' need to learn in isolation from tutor or peers. The statements are in such forms as these:

- the presence of advance indicators in the text increases learning;
- the use of the first and second person and the active voice makes a text more accessible to students than the use of the third person and the passive;
- organisation of the subject matter in a coherent structure which takes account of the learner's previous knowledge increases learning.

International Extension College (1979) and Bååth (1983) are useful practical guides which give rise to statements of this kind.

This is not the place to summarise the literature. It is, however, important for the general argument to show that theoretical statements of the kind which appear in it can be subsumed in a general statement that *learning at a distance can be made more effective by the use of presentational devices within the text and by a coherent structure of the subject content.* As with the previous theoretical statements this does not, in itself, take us very far. Rather it stands as an overarching theory on which others, that are more immediate guides to practice, can depend.

The point, then, of developing these five theoretical statements about learning is to suggest a way forward, in which more detailed theoretical statements of the same kind are generated, that respond to the problems of our learners. The ease of generating such statements is, as will be shown, a contrast with the administrative system where it is far more difficult to go beyond generalisation.

There are, however, four difficulties in using the theoretical statements as they stand as a guide to solving the problems of designing effective distance education. The first has been touched on already: they are too broad and general and it is their narrower descendent theories that are more important. Second, we cannot consider them in isolation from the administrative issues, and need to ask what is administratively feasible as well as what is desirable for effective learning. Third, they depend also on issues of assessment, if only to reach agreement on what we mean by increased learning or effectiveness. Fourth, the discussion so far has been too simplistic, and has seemed to assume that there is a single, simple, entity called 'learning'. In practice, differences between types of learning mean that an adequate theory needs to specify what type of learning is being considered if the theory is to be any actual use as a guide to practice. A challenge for practice and for theory is to consider ways in which distance education can be effective not only in training and information but also in initiation and induction.

The administrative system

I want to touch on administration very briefly and do so with two aims: to show how it relates to the other two systems and to suggest that it is a domain in which we are limited to generalisation and have not developed theories.[13]

An opening question for the analysis of administration in distance teaching and for solving practical problems is, 'what administrative structure is necessary to ensure learning at a distance?'. To begin answering it the administrator will need to consider the nature of the institution's audience, examining it in terms of variables such as social and educational background, location, age, sex and occupation. It is then useful to classify administrations in terms of their structures and their functions. Classifications of this kind are of limited value simply because they are no more than generalisations from reportage of administrative practice. But they may help us in making for better informed decisions about creating or developing distance-teaching institutions, identifying areas of possible conflict.[14]

We can classify distance-teaching institutions in terms of their governing structure, distinguishing four main types of model:[15]

1. autonomous institutions concerned just with distance teaching (e.g. the British Open University);
2. semi-autonomous institutions (e.g. the Lesotho Distance Teaching Centre which is responsible to the ministry of education but was established with some autonomy);
3. departments of larger organisations where there is a department responsible for distance teaching alongside other departments. We can subdivide this group in four ways:
   - 3.1 departments concerned with a s ingle subject only (e.g. College of Estate Management of the University of Reading);
   - 3.2 wider ranging departments which have their own administration and teaching staff (e.g. University of Wisconsin Extension);
   - 3.3 departments which have both administrative and educational staff concerned with distance teaching but rely on their parent institutions for subject specialists rather than employing their own (e.g. Department of external studies at Murdoch University);
   - 3.4 departments which have administrative staff only and where pedagogical as well as subject specialist expertise rests with the parent body (e.g. University of New England and University of Zambia).

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[13] I have discussed administration in more detail in Perraton 1987 and in a course module for the University of Surrey Diploma in the Practice of Higher Education (Perraton with Lewis 1985). There is also an extensive literature on this from the British Open University and some useful guides to practice such as Dodds 1983.

[14] There is, of course, a danger here of pre-emptive categorisation, of making classifications in a way which pre-empts the theoretical ordering of material which may come as and when theory is developed. But the practical advantages of categorising and generalising in discussing administration seem to me to outweigh these dangers.

[15] Various classificatory systems, which vary in detail, have been proposed by, among others, el Bushra 1973 and Keegan and Rumble 1982.

4. co-operative structures where different parts of the process of distance teaching are carried out by separate but co-operating institutions (e.g. FlexiStudy in Britain).[16]

The models are set out in order of declining autonomy. As we move from class 1 to class 4, so the institution has less independent control over its educational work. While a fuller examination of the concept of autonomy might take us towards an administrative theory, this more modest set of categories makes it possible for the educational planner to generalise and to compare the merits of alternative governing structures for a p articular educational purpose. It thus provides a framework for decisions about, for example, the advantages of model 3.2 against 3.4. To caricature the argument, you can seek to recruit teachers truly dedicated to the needs of external students in model 3.2 but in model 3.4 you can ensure that external students are taught by as distinguished academics as internal students und not just by extramural tutors. We can also see that conflicts between editors or course designers, for example, and subject-matter specialists will take a different form within different administrative models, and require different structures to resolve them.

The concept of autonomy is useful, too, in examining the internal functions of a distance-teaching institution, our second way of categorising within the administrative system. Here, it can illuminate questions about the control of an institution's various functions.

We can distinguish seven functions, although some institutions will have fewer than this number where others are assumed by their parent organisations or by other bodies. Most will have the first five:

1. the development and production of teaching material, or the ability to acquire it from elsewhere;
2. storage and distribution;
3. tutoring, counselling and arranging feedback from students;
4. a record system (of students, tutors, materials, processes);
5. a financial system.

Many institutions will also have:

6. a recruitment structure to attract and inform potential students;
7. a capacity for research and evaluation.

The way these functions are exercised, and the internal administrative structure required to control them, are determined or at least influenced by the governing structure of a distance-teaching institution and by the nature of its audiences. A fully autonomous institution like a Latin American radio school, for example, requires an administrative structure with all seven functions. An institution with a similar administrative model but without its own radio station will need rather less developed forms for some of the functions: it will not need its own radio transmitter. But its reliance on another

[16] In practice, distinctions may not be as clear-cut as the typology suggests. The Indira Gandhi National Open University, for example, belongs in class 1 but has a co-ordinating function which places it, with other Indian universities teaching at a distance, within a co-operative structure and so also in class 4. Even with the subdivisions proposed in class 3 there can be difficulties of classification: a department like the College of Adult and Distance Education of the University of Nairobi belongs in class 3.3 but has a small number of subject specialists of its own. Purists might argue that we should really have six groups in class 3 and that the division between single-subject and multi-subject institutions cuts across the other categories.

organisation's transmitter will create the need for a structure for co-operation with those running the radio station. As a generalisation we can argue that the more autonomous an institution, the greater are the administrative burdens which fall on its own staff while, the less autonomous it is, the more it requires administrative structures for co-operation with other agencies. By using classifications of this kind the planner can examine alternative ways of meeting a distance-teaching institution's administrative needs. It is possible then go on to examine the location of different functions or activities and identify where conflicts of interest will arise as a consequence of such location.

Such generalisations, even though they are short of theory, can be of value, then, in identifying administrative issues which the project planner or distance-teaching administrator needs to address. But, in using them we are constantly driven back to the teaching system, asking, 'will this administrative change help or hinder people's learning?' and on to the assessment system, asking, 'are the social and educational consequences of this decision desirable or undesirable?'.

The assessment system

The development of policy for learning or administration is not neutral: in analysing policies we have repeatedly been forced into making value judgments. To complete the picture of distance education we need therefore to ask about its quality and about the criteria by which we will assess that quality. In doing so we undertake two distinct activities, determining the values by which we will judge an educational programme and using these values in making an assessment. Although the first of these activities lies within the domain of social or political philosophy, the second does lend itself to theoretical statements; once we have agreed on the value judgments to be used then it should be possible to say, on the basis of comparative research, that programme (a) is likely to achieve more favourable results than programme (b).

All of this is equally true for the evaluation of conventional education.

In this domain we can begin by asking, 'is a particular distance-teaching programme any good?' and seeking indicators of educational quality which, if at all possible, permit quantification. (Even if we eschew quantification we may want to ask as difficult questions about the presence or absence of a q uality we value.) The search for quantification is a painful one for educators concerned about qualities that are not easily measured. While there are no easy solutions, some of the disadvantages of a narrow quantification can be avoided by using a battery of different measures.

This paper does not take a stance on methodology or review the extensive literature on educational evaluation. In the light of the literature it is, however, possible to propose a framework for evaluating distance education with an appropriate battery of measures. Following work done by McAnany (1975: 240-1) in evaluating radio schools four criteria are proposed: *performance*: the effect that the programme has produced among its target population; *adequacy*: the degree to which effective performance is adequate

to the total amount of need; *efficiency*: the ratio of input to output or effort to effect; *process*: an assessment of the quality of the education as an activity in itself.[17]

Much of the assessment and evaluation of distance-teaching programmes and institutions that has been carried out can be examined within this framework.

Two measures of internal efficiency have been widely used to examine *performance*. The first is a measure of learning, often using examination pass rates as an indicator. A measure of this kind is, of course, more easily applied in formal programmes leading to paper qualifications than in nonformal education and has been widely used for such programmes. Sheath (1965), and Jevons (1982), for example, have used this kind of measure in examining the performance of distance and conventional students at Australian universities. Tests of knowledge gain have, however, also been used in assessing more nonformal programmes, such as the Tanzanian health campaigns (cf. Hall 1978) or Ghanaian farm forums (cf. Coleman and Opoku 1968). The second measure is of the successful completion rate; if we are satisfied that completing a course will produce the intended effect in a target population, then this is an acceptable indicator of performance.[18]

It is much more difficult to determine appropriate external measures that will indicate the *adequacy* of our work. There is some experience in evaluating nonformal courses by reference to the effects they had on people's everyday life, through changes in their health or agricultural practice, as opposed to tests of their knowledge of health or agriculture. The Basic Village Education Programme in Guatemala did this in relation to agriculture; there have been attempts to do it in relation to health campaigns in, for example, Latin America, California, the Philippines, and Tanzania.[19] But these, and a handful of others, are rare exceptions to a general rule that the cost and technical difficulty of attributing social effect to educational cause prevent direct measures of adequacy.

It is not much easier to develop measures of adequacy in relation to formal courses. The difficulty is not, of course, peculiar to distance education. Many evaluations in practice use proxy indicators which are an appropriate measure of adequacy only if we are already satisfied that the educational programme is a useful response to a public educational need. Once this assumption is made, one simple method of assessment is to ask about the audience reached by a distance-teaching programme, in terms of its wealth, or educational background, or location – all issues which were touched on in considering administration.

There is a rich lode of research that has been mined by the Open University here (cf, for example, McIntosh, Woodley and Morrison 1980). Comparison with other programmes

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[17] McAnany used five categories, setting effort, the quality and quantity of work done in the programme, as the first. While measures of effort are, of course, a part of some evalautive processes, I see them rather as a means to the end of assessing efficiency or performance than as a separate criterion. I have also borrowed the term 'process' from McAnany's scheme but use it not in the sense that he did of 'how and why a program works or fails to work' but in the sense used by Bruner and Stenhouse.

[18] In practice, of course, there are difficulties in using this indicator as a comparative measure where the target population of a distance-teaching programme is different from the population of other examination entrants.

[19] Leslie (1978) discusses the issues of evaluation in relation to health campaigns generally. See also Manoff et al. 1977 on Nicaragua and the Philippines and Hall 1978 on Tanzania.

is made possible by such research, but, it is still seldom easy to determine the size of the potential need against which a programme should be assessed.

Another possible measure is the rate of return, or an attempt to measure in financial terms the benefits which arise from having gained a qualification through distance learning. Following analysis of rates of return for education more generally (cf. Psachoropoulos 1973 and 1980), Mace (1978), for example, has used this principle in an attempt to compare the value of the British Open University with conventional universities.[20] A further possible external measure of the status of a distance-teaching institution is the extent to which its qualifications, or its graduates, are accepted by other and more conventional institutions. This would seem most appropriate if a programme had as one of its major aims the production of future scholars.

Despite the difficulties, measures of performance and adequacy do make possible the kind of theoretical statements already made in the discussion of the teaching system. Theoretical statements are also possible when we move to examining the *efficiency* of distance education. Cost-effectiveness analysis is one possible technique. If we accept that measures of performance such as examination pass rates are acceptable indicators, then it is legitimate to ask whether distance teaching or conventional teaching is a cheaper or dearer way of achieving the same result. There are often practical difficulties in that cohorts of students in the two modes are not similar. And the quality of the cost-effectiveness research has been criticised by Carnoy and Levin (1975) who argue that much of it displays a 'benefit of the doubt' bias in favour of distance education. Nevertheless, enough work has been done in analysing for us to seek theoretical statements here.

Distance teaching would seem, on the face of things, attractive to financiers of education because it promises economies of scale, allowing educational resources to go further than is possible with conventional education and a measure of capital-labour substitution. (cf. Jamison and Orivel 1982: 255). We would therefore expect theoretical statements about the economics of distance education to concern themselves with such substitution. As the cost of producing materials and administering a distance-teaching service are additional to the costs of running an ordinary school system we can claim that, where distance teaching includes some face-to-face teaching, *if in a distance-teaching system the costs of face-to-face support rise to the level of those in conventional education, then the costs of distance teaching cannot compare favourably with those of the conventional system.*

We can go at least one stage further in the analysis. Assuming that we define 'favourable economic outcome' of distance education as a success rate at costs lower than those achieved by conventional education, then we can argue that a *favourable economic outcome for any one distance-teaching course is a function of three factors, the number of students, the amount of face-to-face study and the sophistication of the media used*. Figure 3.2 shows this in diagrammatic form. It enables us to define a surface (a_x,b_y,c_z) at which unit costs are the same for conventional and for distance education.

[20] The philosophical objections to rate of return analysis apply with as much force here as they do more generally.

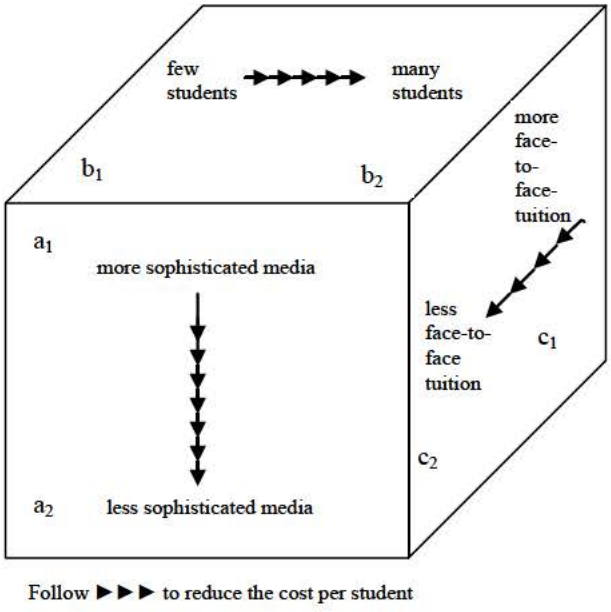

Figure 3.2 A model for comparing the costs of conventional and distance education

While we lack the data to put monetary values, in all but a few cases, on the building bricks which make up the block in figure 3.2, its existence and the theoretical argument behind it, may serve as a guide both to data collection and to planning. The figure illustrates, too, the need for the three systems of analysis and the relation between them: as a guide to administrative planning it needs advice from the teaching system about the sophistication of the teaching media needed for a particular audience and subject, and about the role of face-to-face learning, while it needs to be informed by the assessment system about trade-offs such as that between the numbers to be reached and the amount of face-to-face learning permitted.

Assessing *process*, with necessary questions about the quality of the educational experience as opposed to its performance, adequacy or efficiency, is more difficult and more controversial. I would, however, argue that we need to go on and ask how far the process of learning at a distance is, in itself, rewarding for the learner, or how far it is merely a dreary means to an end, justified because of the value of the objectives but not justified through its intrinsic worth as a human activity.

Indeed, I would go on to claim that evaluation of process has been comparatively neglected and that there are reasons to play it up which spring from the nature of distance education. For distance education faces the danger that it will encourage rote learning, will rely on extrinsic rather than intrinsic rewards, and will deprive its students of some of the most valuable parts of the educational process. We know that distance education is an effective way of conveying information but at the same time that, with its necessary reliance on the written text, it can easily degenerate into rote learning. Kirk, for example, has suggested that the greatest intellectual benefits of the Open University go to the writers of courses rather than the students and warns of 'the danger

of a mass-produced student product which is of inferior calibre to that of conventional universities' (Kirk 1975: 4). A concern for process can help us keep asking questions about distance education's value for induction and initiation as well as for the transfer of information or the training in skills.

An excessive reliance on extrinsic rewards is not inherent to distance education. But in practice the widespread use of an objectives-led model of course development may lead towards this and towards the dangerous assumption that what is easily assessed is necessarily worth learning. In contrast, as Stenhouse has argued,

> The aim, 'to understand Hamlet', is not susceptible of analysis in terms of content elements. Here, 'understanding' means to respond to or experience the concrete reality of a work of art. The response or experience is individual, though there are canons by which we can judge its appropriateness, by which one can discriminate understanding from misunderstanding. It might be tempting to couch objectives in terms of these canons, adopting as an aim 'to develop literary judgment'; but it seems to me that this aim cannot be analysed into pre-specified student behaviours in any way. ... To use the play as a vehicle for teaching skills is to imply – and students rather readily pick up the implication – that the skills and vocabulary and so forth are the important matter rather than the play. *(Stenhouse 1971: 75-6)*

It is because of the neglect of process that the most formidable challenges can be mounted against distance education as offering the shadow rather than the substance of education. But I have one further reason for stressing the evaluation of process: because it is something under our control. If our concern is with the external value of our work, or of the extrinsic benefits that our students will derive from it, then we may well get it all wrong, teach our students things that will in practice be of little benefit to them and, because of the difficulty of disentangling the effects of our work from those of other variables, never realise what we have done. In assessing process, on the other hand, we are not concerned with future benefits that our students may obtain, but with the value of the work they are doing while they are our students.

The evaluation of process is thus a necessary part of the assessment system. It is also the part where the literature gives the least help in suggesting how we should do it: another feature which is common to the evaluation of conventional education. The link between it and the assessment of adequacy suggests that it is legitimate to talk of a system of assessment with necessary interrelationships between its constituent elements. By using a combination of the measures and indicators discussed in this system we can seek to make some assessment of performance, adequacy, efficiency and process, although there remain methodological challenges for us here, especially in the evaluation of process.

Especially in discussing process, I have strayed from discussing the techniques of assessment into a discussion of the values I would choose and use in making an assessment. There is no escaping this. Even if we decide to use a battery of evaluative measures, we will need to seek trade-offs between conflicting goals. High pass rates, for example, may conflict with low unit costs or large and socially diverse audiences. Or we may find that we can improve our performance, as measured by examination results, by using styles of teaching that we also regard as being part of an inferior process: a familiar dilemma.

Let me therefore conclude, in the way I began, by laying my remaining cards on the table. In carrying out assessment we have to start from a political or philosophical judgment that informs our choice of priorities and of evaluative criteria. Examples from the recent history of distance education demonstrate that agreement about the value judgments used in assessment cannot be universal. It has been claimed, for example, that one of the advantages of the Free University of Iran, in the eyes of the Shah's regime which established it, was that distance education allowed students to get degrees without gathering together, when they might pose a threat. Yet few of the published apologists for distance education see its convenience for autocratic regimes as a benefit. Less dramatic views about distance education can also be controversial; some writers have argued that a strength of distance education is that it develops a degree of autonomy in its learners.[21] But the development of the autonomous ability to learn would be an inappropriate measure for a distance-teaching activity like the Tanzanian radio campaign on health whose aim was to stimulate co-operative action by groups of villagers.

Thus the two questions proposed below about the quality of the educational process of a distance-teaching programme represent an individual view of the more important criteria for use within the assessment system. They are not posed as an alternative to the battery of measures suggested nor is it claimed that they are the only important ones. Rather they serve to illustrate the point that, while the assessment system is a necessary part of the proposed framework for analysing distance education, we cannot assume universal agreement about the criteria to be used within that system.

My two key questions are these. First, does the programme lead to open-minded enquiry and not merely to rote learning and sometimes examination success? The diploma disease can be endemic but for me is not what a liberating education is all about. Reverting to Stenhouse's categories, we need to ask how far distance education can lead towards induction and initiation and how far it is limited to instruction and training.

The second question concerns social equity. We can ask whether a distance-education programme is increasing or decreasing social equity. On the face of it, programmes of distance education which widen educational opportunity would seem to promote equity. But Bock and Papagianis (1983) have argued that some nonformal programmes are in practice, if not by design, containing educational demand rather than increasing equity. The question is not easy: by offering an inferior education (if that is what we are doing) to people outside school who might otherwise get none, we are doing something to widen educational opportunity, even if we are not restructuring an educational system in a way which makes it more egalitarian as a whole and may be helping to legitimise a system stratified on class lines. Thus, my final question for a distance-teaching programme is to ask whether it is increasing, or has the potential to increase, social equity.

Conclusion

The argument of this paper can now be summarised briefly. While it is naive to seek a single theory of distance education, it may be useful to examine distance education in terms of three interrelated systems of teaching, administration and assessment. This

[21] Wedemeyer and Moore have argued this case (cf. Moore 1983); following the analysis used in this paper I would claim that their statements about autonomous learners are generalisations rather than theory but also that they move from description into value judgment.

examination provides a coherence that may be useful both for teaching and for the improvement of practice. In the teaching system, it is possible to make theoretical statements, using the term 'theory' in a strict and narrow sense. While the statements made here are in too general a form to be of great practical value, they suggest a way in which narrower, and more useful, dependent theories can be developed from them. In the administrative system, generalisations can be drawn from practice which may offer useful heuristics and may, in time, serve as the basis for administrative theories. In the assessment system, we need both to make value judgments about educational quality and to seek indicators of that quality. Given agreement on values, some theoretical statements can then be made about the economic assessment of distance education. But the values themselves, while being a necessary underpinning of the theories and generalisations examined, are external to them and derived from political philosophy rather than from the practice of education.

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4 International research in open and distance learning

With funding from the Leverhulme Trust a one-year feasibility study was carried out in 1995-96 to examine the case for establishing a specialised research unit dedicated to open and distance learning.[22] The study drew on international experience and resulted in proposals to establish the unit and a sketch of the research which were seen as a priority. The following extracts from the study illustrate how the research agenda had – and had not – moved on from the exploration of theory and practice nearly a decade earlier.

The report began by defining its terms.

Definitions and needs

We have used 'open and distance learning' as an umbrella term for our sphere of interest. It covers distance education, open learning and the use of telematics in education. We have working definitions of each of these, although the way the terms are used varies with location: something called distance education in one place is called open learning in another. The definitions are:

> Distance education is an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner.
>
> Open learning is an organised educational activity, based on the use of teaching materials, in which constraints on study are minimised in terms either of access, or of time and place, pace, method of study, or any combination of these.
>
> Telematics is the combined use of telecommunication and computer technology.

The report surveyed the development of open and distance learning over the previous few decades, and the variety of forms it was taking, and emphasised that it was not confined to higher education. After exploring the activities which the new research unit might undertake it went on to examine how its programme of research work should be shaped. Its starting point was the demand for research and a gap in contemporary practice in providing it:

The expansion of open and distance learning has put new policy questions on to the educational agenda. Items about open and distance learning, for example, have appeared on recent agenda of the quinquennial conferences of the Association of Commonwealth Universities and the regular meetings of Commonwealth ministers of education. Both the European Commission and UNESCO have developed policy statements about open and distance learning and asserted its significance. The treaty of Maastricht refers to it. The World Bank has carried out reviews of its relevance to developing countries and of the effectiveness of its own investment in this area. Ministries of education, universities, and industry alike are seeking answers to policy questions about the effectiveness and the methodology of open and distance learning.

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[22] Perraton, H. (1997) *International research in open and distance learning Report of a feasibility study*, Cambridge: IRFOL

Practitioners working in open and distance learning are themselves posing research questions about its practice. They do so with particular urgency because of the unfamiliarity of the processes of open and distance learning to many of those working in education. It is possible to base tolerable classroom practice on the accumulated educational experience of generations: teachers can teach as they were taught. There are no such familiar guidelines in open and distance learning.

There is, as yet, no obvious international node for research on open and distance learning. There are good reasons for this. Most of the staff of open learning institutions, such as the world's open universities, are primarily interested in teaching and research within their own disciplines rather than in education itself. For their part, most faculties of education are, understandably, even properly, concerned with education in schools and not with an unconventional methodology whose principal use has been outside school. As a result we are short of good research in many critical areas of policy and practice in open and distance learning.

There are both general and particular arguments for urging an international approach to questions in these areas. The general argument, buttressed by globalisation, stresses the values of comparative research where similar problems are examined in different national contexts. The specialised case is more subtle. As many forms of open and distance learning demand heavy investment in infrastructure and in the development and production of teaching materials, so there are pressures for institutions to be relatively large in terms of student numbers. This in turn means that there are fewer distance-teaching institutions in most countries than conventional teaching institutions. The consequence of this is that the experience of open and distance learning in any one country may be deep but is seldom broad. Comparisons between different styles of open and distance learning may necessitate comparative studies between countries.

After looking at relevant organisational questions the report explored the principles that should guide its work.

Priorities and principles

The International Research Foundation for Open Learning (IRFOL)'s primary task will be to launch a programme of activities that meet the demands we have identified and to do so in a way that is sustainable. The initial priority will be to begin work on the research activities and priorities examined below, while building up the information services needed to go with them. In shaping a programme of work we have been guided by a set of principles that reflect the needs of the communities of policy-makers, practitioners and researchers.

One principle concerns the balance between areas of research. Our review of the existing research literature, and contact with ministries, universities and funding agencies, shows that most of the existing research is on the audiences for open and distance learning and on its practice, rather than on policy towards it and the most effective policies to implement it. One recent American overview of distance education comments, for example:

> While quite a lot of research has been done on the effectiveness of media, course design techniques, and instruction, very little has been done to find out what are effective policies or what are the effective mechanisms for making policy at either national, state or institutional level. *(Moore and Kearsley 1996: 74-5)*

This matches our own findings that we remain short of studies of the kind that policy-makers seek: on outputs, effectiveness and costs, on the legitimacy of open and distance learning, and on resource and planning issues relating to its adoption, themes that are picked up below. The conclusion is that, in determining its research agenda, IRFOL should give some precedence to the needs of policy makers, supporting research that will speak to the needs of those framing national and institutional educational policy.

Open and distance learning is of as least as great significance in the developing countries of the south as in the north. Indeed, the figures show that in terms of numbers in higher education, it is playing a more significant role in the south. Inevitably, the south is less well-researched than the north. A concern for international social justice will lead us to seek research projects of benefit to developing countries and, subject to funding, to devote a significant proportion of our energies to them.

The world's open universities have attracted the most publicity. But open and distance learning methods have also been used on a huge scale for the education and training of teachers and, in many countries, to provide alternative forms of basic, secondary and nonformal education. Ministries of education, universities and funding agencies alike are in need of guidance on policy and practice in this area. The Asian Development Bank, for example, organised an international seminar in October 1996 to review the potential of open and distance learning for primary teacher education in the five high-population countries of Asia. One of our correspondents from Africa sums up advice put to us from many quarters in urging IRFOL to:

> undertake studies that would assist countries which have identified that the provision of distance education must be diversified and expanded rapidly to meet the educational and training needs of a number of different client groups over the next 20 years. I would further hope that although the field would be the whole of open learning the pendulum would swing more towards pre-tertiary programmes. Developing countries need policy options on mounting pre-tertiary vocational, professional and management in-service upgrading programmes and, obviously, you are aware of the large number of dropouts after nine or ten years of basic education, most of whom are of school age and a little above.

We want, therefore, to investigate the use of open and distance learning at all levels of education and to ensure that its use for adult, continuing, nonformal and school-level work is the focus of research along with its use in higher education. Furthermore, we see benefits for the research in working at more than one level of education: findings from one level of education may be relevant to another as may the differences between them.

We will address issues where an international perspective is useful. Much of the research conducted so far in open and distance learning has been about the practice, or the student body, of a single institution. While research and evaluation of this kind is likely to be of internal interest and value, we see greater general benefits, for educators and the research community, where comparisons between institutions are central to the research. Thus we will concentrate our energy on comparative studies, often involving more than one country. Our research proposals on university restructuring, for example, are for parallel research activities which might be undertaken in universities in Britain and Australia. IRFOL will also seek out research programmes that are undertaken

within a single country where these are likely to be of international as well as national interest and where its international links can bring an outside perspective to a single-country study.

One of the weaknesses of the current literature on open and distance learning is its reliance on descriptive case studies. Of exactly 100 papers submitted to the 1996 conference of the European Distance Education Network[23], for example, 70 were case studies of which 51 related to the work of a single institution. No more than 11 of these attempted to draw generalisable conclusions from the case study data and put this into a theoretical framework. While this may be acceptable for a conference it represents a warning for IRFOL: it will not be much use if it simply piles up more case studies. It will, in contrast, need to ensure that its research work has an appropriate theoretical base that facilitates the transfer of findings from one context to another.

Thus five guiding principles will govern IRFOL's selection of work: to give priority to policy issues; to keep the needs of developing countries high on the agenda; to work at all levels of education; to undertake comparative studies within an international framework; and to ensure that its work is intellectually rigorous with an appropriate theoretical basis.

Current and previous research

As part of the feasibility study we commissioned several reviews of the current state of play in research in open and distance learning as well as reviewing the research reports included in the International Centre for Distance Learning database.[24] As a result, we already have a fuller picture than has been available previously of the strengths and weaknesses of the current body of research. Our analysis shows that most of the existing research falls under one of five headings.

1. Description: there are many descriptive accounts of courses and institutions. Indeed, the bulk of the literature on open and distance learning, whether specifically labelled as research or not, is essentially descriptive, discussing some combination of the management, students, teaching methods and outcomes of a course or institution.

2. Audience studies: we have many studies of the audiences for open and distance learning, at various levels of education, and in both industrialised and developing countries. In some cases these studies also examine the performance of students in relation to variables concerned with the methods of study.

3. Cost-effectiveness studies: there is a growing literature on cost-effectiveness with a fair measure of commonality in the methodology used. Much of this focuses on higher education. Many of the earlier studies, mainly carried out in the 1970s, concentrated on the comparative cost per learning hour of study through different methods. Most of the more recent studies have compared the costs of programmes of open and distance learning with those of conventional alternatives.

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[23] The European Distance Education Network (EDEN) has been renamed The European Distance Education & E-Learning Network (EDEN).

[24] At that time housed at the Open University but understood later to have closed down.

4. Methodology: there are studies, again often descriptive, of the various methods used to teach, support and counsel open and distance-learning students. Much, though not all, of this work examines the practice of a single institution. Much, too, is essentially pragmatic, in some cases reporting on the effectiveness of particular techniques but seldom attempting to develop general, leave alone theory-based, guides to practice.
5. Social context: some recent work has been concerned to examine the social context of open and distance learning. This appears to be an expanding area of work at least in industrialised countries.

Existing research has been shaped by the agencies and individuals that have commissioned and undertaken it. The main actors have generally approached research from one or more of four angles.

1. The largest body of work has come from practitioners working in open and distance learning institutions. This is particularly true of the journal literature and of conference papers.
2. There is some more analytical work, drawing on traditions of research in the psychology of learning, on key variables in, for example, the presentation of information in print and other formats.
3. Ever since educators started to use radio, research activities have been generated by those interested in the use of a particular technology for education.
4. Significant work, especially in undertaking overviews, has been carried out, stimulated or commissioned by international agencies concerned with international educational policy. These have included the World Bank, UNESCO, and the European Commission. The latter two have both produced overview policy papers.

The categories sometimes overlap. The European Commission's interest in measures to improve training and develop economic competitiveness has stimulated research on the use of particular technologies in education (e.g. through the DELTA project on the application of telematics to education). Practitioners have undertaken research that draws on paradigms from the psychology of learning while conclusions for policy have been drawn from the work of practitioners.

Generalisations about existing research are necessarily broad, but three are important for our own proposed programme. First, as noted above while there is a considerable volume of literature, this is overwhelmingly concerned with details of the practice of open and distance learning and not with policy towards it. Much is descriptive rather than analytical. As a result, we are short of research to guide policy examining, without special pleading, what can be established about the strengths and weaknesses of open and distance learning and its likely outcomes. We return to this below as it is the cornerstone of much of our proposed research programme.

Second the literature is predominantly about higher education and about industrialised rather than developing countries. The International Centre for Distance Learning database, for example, had at the time of writing 4521 items on the application of open and distance learning; 1505 of these concerned Europe and only 250 Africa; while there

were 2781 entries for higher education, there were only 174 for basic education and 566 for secondary education.

Third, much literature on the comparative effectiveness of open and distance learning methods still suffers from a benefit of the doubt bias, identified by Carnoy and Levin (1975), consistently giving unconventional methods the benefit of the doubt in any equivocal findings.

While the existing literature has weaknesses as a research record, it provides extensive documentation on the practice of open and distance learning which can be used as a base on which to build a more thorough research programme.

Our research programme

There is a range of issues that are important for users of research. In shaping a research programme we want to move away from the piecemeal research that we have criticised and develop a set of related research activities within a single framework. Our intention is that the different elements of the programme will inform and reinforce each other with the whole being more than the sum of its parts. The programme set out below addresses issues that fall under one of two headings: the context of open and distance learning and its application.

Questions about the context of open and distance learning concern the purposes for its use, its role alongside other forms of education and its outcomes. The questions cluster round issues about the legitimacy, quality, effectiveness and outputs of open and distance learning that are of particular significance for policy makers. Answers here will help decisions about whether or not to use open and distance learning and identify the conditions under which it is likely to be at an advantage or disadvantage when compared with conventional forms of education. Most of the existing research in this area has comprised economic studies of the cost effectiveness of open and distance-learning programmes.

In considering the application of open and distance learning we will address issues about the most appropriate ways of using open and distance learning for a given audience and purpose. Many of the questions at this level are about choices of methodology within open and distance learning, once a decision has been taken about its legitimacy for a given purpose. The principal users of research on applications are practitioners. While there are opportunities for new research here there is also scope for developing useful guides to practice that are based on meta-analysis of existing literature.

The context of open and distance learning

In researching the context of open and distance learning we propose to undertake studies on the political economy of open and distance learning, its purposes and outcomes, and the impact of internationalisation on decisions about its use. In doing so we will be addressing questions such as:

> How do the outcomes of open and distance learning, as a process of human resource development, compare with those of conventional education?
>
> What does the evidence tell us about the quality of the educational process of open and distance learning?

How far does the evidence suggest that open and distance learning in developing countries is meeting national educational needs as well as serving as an apparent means of widening access?

What are the critical variables affecting the unit costs of open and distance learning and how do these behave at different levels of education?

The common factor in such questions is that they would be illuminated, and at least in part answered, by a synthesis that moves on from the predominantly descriptive literature and case-study evidence to reach general conclusions about the quality and outcomes of open and distance learning, taking account of cost, of educational context, and of educational methodology.[25]

We have found little literature on what we might call the political economy of open and distance learning, examining the reasons why governments have adopted it and the purposes for which it has been used. As a result it is difficult to answer questions about the extent to which it is seen as a legitimate form of education or as a means of containing educational demand. In order to understand questions of context we will need to examine the choices made by students as well as those made by governments and employers. While there are many studies on the nature of the student body for particular institutions, we have, for example, few studies that focus on the barriers to study and the circumstances in which potential learners choose whether or not to adopt open and distance learning. To set the rest of our research in this broad context, therefore, IRFOL will develop research proposals in this area.

Research on the outcomes and costs of open and distance learning will help to determine the circumstances in which it can be sustainable. We already know something about costs; previous research has identified some of the conditions under which distance education is likely to be at an advantage or a disadvantage as compared with conventional education. But the evidence is neither as robust nor as full as it needs to be. We have developed detailed proposals for research on the costs of elements within open and distance learning programmes, on models for allocating costs, and on the outcomes of programmes of open and distance learning. The first phase of this work is a project funded within the Socrates programme of the European Commission.[26] This concerns education at both secondary and tertiary level. Proposals have been drafted for parallel work in developing countries.

Work has started on one further piece of work on outcomes. The Asian Development Bank is exploring the use of distance education for the training of primary school teachers for the five largest-population countries in Asia: Bangladesh, China, India, Indonesia and Pakistan and has appointed the Commonwealth of Learning as its principal consultant. IRFOL was commissioned to produce a background paper on the cost effectiveness of distance teaching for teacher training.[27] This was used as an input

[25] A major research activity in this area was proposed but not funded.

[26] The outcomes of this research are reported in Hülsmann 2000

[27] See Asian Development Bank 1997 and Paper 12 below.

to the Bank meeting to shape its policy and also serves as the starting point for further research work on teacher training.[28]

IRFOL will have an obvious interest in internationalisation. Open and distance learning can cross national frontiers and is beginning to do so. Some open universities are vigorously recruiting international students. Alongside the major international actors the Commonwealth of Learning and its francophone equivalent *le Consortium international francophone de formation à distance,* have been set up as specialist agencies to promote cooperation in distance education. But there is little research about the modalities, effectiveness and cultural appropriateness of international cooperation. The agenda will include research on the ways and means of international cooperation, on its regulation and on the opportunities and threats which it poses to institutions and individuals.

The application of open and distance learning

In examining the application of open and distance learning we will be concerned with audiences and methods. Comparative studies here will yield results for policy-makers and practitioners seeking guidance on questions such as:

> What are the strengths and weaknesses of the various models that have been developed for open and distance learning at different levels of education?
>
> Does the evidence allow us to prescribe the right balance between the central production and distribution of teaching materials (where economies of scale are possible) and the organisation of local support to students (which does not allow such economies)?
>
> How, if at all, can we use open and distance learning methods effectively for young people out of school?
>
> What structures and what kind of development programmes will assist universities that are moving from working in a single mode to becoming multi-mode institutions?

Questions in these areas are likely to fall under three headings: management and administration, teaching, learning and assessment, and communication technology.

Management and administration

Open and distance learning imposes unfamiliar demands on educational managers. It forces them, for example, to rethink the relationships between academic and administrative staff. The development of pre-prepared teaching material in turn forces academics into an unfamiliar separation of functions between the development of teaching materials and tutoring. A range of different organisational structures have been developed to cater for the particular needs of programmes of open and distance learning. The management choices to be made are probably more difficult in bimodal institutions, teaching both conventionally and through open and distance learning, than in single-purpose institutions. We have therefore developed proposals with a group of

[28] IRFOL went on to carry out research from both UNESCO and DfID on teacher education, reported in Perraton, Robinson and Creed (2001 and 2007), Perraton, Creed and Robinson (2002) and feeding into Robinson and Latchem 2003.

institutions in Britain for a research project on the management questions faced by bimodal institutions as they move into open and distance learning. While this project will, initially, be focused on Britain, we anticipate that it may be possible in due course to support or cooperate with parallel ventures overseas.

Teaching, learning and assessment

There is a co nsiderable volume of literature on the processes of learning, student support and assessment in open and distance learning. Again, the main bulk of this literature is concerned with rich countries and with students in tertiary education. While there is more work to be done here, we see our primary task as being to develop guidance, based on research, for lower levels of education in developing countries. A particular problem here is to develop guidance for student support for adults and young people seeking education at secondary level, or interested in nonformal education. Here, it appears that there is encouraging and under-documented work in Asia and possibly Latin America which may be of relevance to the severe educational problems of sub-Saharan Africa.

Communications technology

Developing countries, and their educational institutions, have a p articular need for guidance on the transferability of communication technology. Pressing questions arise about its appropriateness in institutions with minimal budgets in countries where the public telecommunication infrastructure is less well developed than in industrialised countries. Institutions need to know how far investment in particular forms of advanced communication technology is likely to yield a reasonable return. Advice at present tends to come either from the communication industry or from specialists, sometimes with a commitment to a p articular technology. Rapid changes in technology, and new developments like the availability of direct broadcasting satellites, present policy opportunities while posing questions that need to be illuminated by research. The Commonwealth of Learning has begun to explore some of these issues, with the support of the British Department for International Development, and IRFOL would welcome the opportunity of being involved in the elaboration of this research.

We drew a d istinction above between research on the context of open and distance learning and on its application. While the distinction is important, there will be many links between the different parts of our research programme. Work on the outcomes of open and distance learning will, for example, force us to ask questions about the particular applications that lead to more or less favourable outcomes. Similarly, we anticipate that the findings of our work on costing will feed into work on the management of bimodal institutions. Useful findings from our work on student support will yield results that have a bearing on some of the questions to be examined about the political economy of open and distance learning. The case for establishing a specialist agency like IRFOL rests in part on the strength of these interactions.

IRFOL was established as part of the Institute of Community Studies but subsequently became an independent nonprofit research agency. It negotiated funding from a variety of sources and, with the Commonwealth of Learning, arranged that it should become its research arm. After I had stepped down from being its director funding apparently became more difficult and the foundation had ceased carrying out research by 2008.

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PART TWO:
PURPOSE AND CONTEXT

Overview

Part one started with theory; this part starts with ideology. The story begins (Paper 5) in Botswana, where its first president, Seretse Khama, wanted to ensure that the benefits of economic development were fairly shared and reached out to the rural, the remote and the poor. It comes back to southern Africa in Paper 8 which looks at changes over thirty years, and to ideology by quoting Armatya Sen's arguments for education in the interest of capability, 'the ability – the substantive freedom – of people to lead the lives they have reason to value and to enhance the real choices they have'. Using the distinction drawn in Paper 4, between the context and application of open and distance learning, this part is about context and about the purposes for which it has been used, rather than about its methodology. But the starting point is the ideological argument that education can be used to promote social justice. As Halsey pointed out, 'It does so slowly against the stubborn resistance of class and class-related culture. But it remains the friend of those who seek a more efficient, more open, and more just society' (Halsey et al. 1980: 219). Each paper identifies and explores, within different contexts, the policy issues that follow from that conviction.

Paper 5, on rural education in Botswana, describes a series of attempts to use open and distance learning in the interest of rural development. The Botswana Extension College was set up in 1973 to run both formal courses, aimed at school-level qualification, and nonformal courses. Social justice demanded that these should focus on the village and the land. Their early development was inevitably chequered and the story illuminates some of the difficulties of creating a different kind of curriculum and a methodology for teaching it.

Between the mid-1970s and the mid-1990s, the date of Paper 6, education was increasingly interpreted as a component, even a driver, of economic development. Education for social justice gained renewed international attention perhaps only in 1999 with the publication of Sen's *Development as freedom* (Sen 1999). Over this same period the process of globalisation and changes in information and communications technologies were helping education to cross national boundaries. Against this background, Paper 6 examines some of the emerging policy questions for international higher education. The issues of social justice here are not about disparities within a single country, but about issues played out across frontiers. They include questions of governance and of economics, including the risk that open and distance learning may be priced out of reach of its potential students.

Paper 7 returns to basic education. It refers back to Philip Coombs' identification in 1968 of a *World educational crisis,* which he revisited in 1985, in which demand for education was outstripping society's capacity to provide it (Coombs 1960 and 1985). Despite the strength of his analysis, this paper argues that formal education has in practice expanded more rapidly, and proved more resilient, than the predictions. Against that backdrop, it develops themes introduced in the previous paper about the role of the

technologies and about their potential in strengthening and expanding education for poor people in poor countries. Drawing from the economics of education – another growth area in the previous quarter century – it offers guidance on the sensible use of technology within open and distance learning.

The final paper in this part, presented at a co nference in Lesotho of the Distance Education Association of Southern Africa, comes full circle back to the first. It examines educational progress over the previous thirty years within a subregion that had, over that time, become relatively poorer as compared with the industrialised world. Unsurprisingly, it sees the record of achievement as patchy and suggests, as one way forward, a tough-minded realism about where open and distance learning works best, and an engagement by distance-learning professionals with the broad educational policy agenda. Almost as an introduction to part three, which is about application rather than context, it also proposes a set of conditions for success which can be derived from the experience of open and distance learning and from research about it.

Three other themes run through this part, exploring the role of nonformal education, the place of the technologies, and the research agenda.

Open and distance learning tends to go across the grain of conventional education, as does education for capability, where it is in conflict with curricula narrowly conceived in terms of the job market. The rise and fall of nonformal education provides an illustration. Hopes were originally high. A book that amounted to a manifesto for the International Extension College set out the thinking echoed in the plans for rural education in Botswana:

> Where then does the experience of non-formal education and its use of distance teaching methods lead us? Can we find here any of the answers to the limitations and false starts, the irrelevancies and failures of the formal system? Is it possible in this way to harness education to the twin, though not always linked, processes of development and liberation? For it is only of importance if it shows new ways of overcoming the educational deprivation of this and future generations whom the schools will hardly touch. *(Young et al. 1980: 102)*

There was a twofold idea here, touched on in Paper 5 about rural Botswana: we wanted to use open and distance learning to meet the immediate needs of adult citizens, and also to explore the idea of creating an alternative system of education that could escape from the constraints of the formal and could, through its careful economics and curricular vision, successfully compete with the formal. There were hopeful, short-term, signs of progress on the more immediate part of this where the first rural courses, and a large national radio campaign, went some way to achieving their aims. But nonformal education always sat awkwardly within a ministry of education and these programmes fell away. (There is a discussion in Paper 8 drawn from the work of Palitha Edirisingha of the problems of locating nonformal education within organisational structures.) And the third look at the world educational crisis in Paper 7 found little new to report. Demosthenes[29] may have argued that great ends often have small beginnings but some encouraging small beginnings lead to few discernible ends. And yet: the needs for rural

[29] The Jamaican minister of education quoted him when supporting the idea of establishing the Commonwealth of Learning at the Commonwealth Conference of Education Ministers in Nairobi in 1987.

and nonformal education remain and the record of experimental approaches to it remains of value for any new beginnings. This point is picked up in a methodological review of nonformal education in Paper 11 below.

The other and bolder aim, of creating an alternative, nonformal, curriculum and alternative kind of schooling, was always more difficult. Paper 7 refers to the collapse of Acción Cultural Popular in Colombia which went furthest towards creating something like this and in due course fell foul of both church and state. In much of the world, however, the demand for basic education was met not by the growth of nonformal education but by the expansion of formal, conventional, schools, itself spurred by demand and encouraged by the international consensus achieved at the Jomtien and Dakar conferences in 1990 and 2000. It became clear, too, as argued in the same paper on the basis of research done for UNESCO, that there is no general alternative to primary school: children need its support while technology-based alternatives have usually been at a comparative disadvantage. Formal education can still be criticised, for its curriculum and its methods, but it seems less likely than we once imagined that it will be transformed through demonstrations of the power and effectiveness of the nonformal.

The stark conclusion has to be that nonformal education has disappointed as a route towards social justice.

The speed of technological change, the second theme of this part, has kept distance educators busy. Whereas in Botswana in the 1970s, before the country had a national television service, the available media were print, radio and cassettes, planners today can add mobile phones, videolinks, and a variety of computer options from simulations to open educational resources and networks for dialogue. At the same time there are continuities. The claims made for television in the 1960s and 1970s, were, as argued in Paper 7, remarkably similar to those for computers in the 1990s and 2000s. In the earlier period there was a dramatic contrast between the range of media available to the individual citizen in rich countries and poor. Today there are concerns about digital divides, not only between countries but within them. Together the papers, particularly 7 and 8, explore how the technologies can be used within open and distance learning and set this exploration in the context of their costs. They do so with a continuing concern for social justice and a sense of alarm at glib technological enthusiasm. Paper 7, for example, demolishes the argument that there are now simple technological opportunities for poor countries to leapfrog the educational systems of the rich.

The third theme concerns research to guide policy. Research was built into the structure of Botswana Extension College with a full-time evaluator and research staff providing formative evaluation from the outset. The remaining three papers pick up the case for good research made in part one, seek to identify some of the critical research questions, and argue for practitioners to use research findings within their dialogue with educational policy makers. Much of that dialogue will be about national issues but, as emphasised in Paper 6, some of the issues are international. Globalisation, and the capacity of the technologies to take education across boundaries, have broadened the policy debates. While this means that we have new mechanisms and organisations to cooperate across boundaries, and to share resources, we also have new issues of good practice and governance demanding the attention of educators. They too demand illumination from research.

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5 Rural education in Botswana

This is a shortened account of work done by the Botswana Extension College (BEC), edited from a fuller report published in the International Extension College series Broadsheets on open learning *in 1977.*[30] *The college was set up in 1973 by the government of Botswana with support from the Ford Foundation and from IEC. The college ran both formal and nonformal courses. The formal courses were for school-level examination while the nonformal courses, on which this extract concentrates, were more varied. It carries forward the story touched on in Papers 1 and 2 and explores the way in which some of the educational needs of rural Botswana might be met through open and distance learning.*

Botswana's successive Development Plans provide both a framework for development and hard information for planners in Government or outside. A variety of reports on different aspects of rural development exist and a key survey of rural development was commissioned from the Institute for Development Studies in Nairobi in 1972; the consequent *Report on Rural Development* (Chambers and Feldman 1973) was to prove the starting point for much of BEC's work. The existence of such reports meant that the first jobs to be done in Gaborone were to study the literature and talk with representatives of the ministries concerned with education and rural development. These discussions led to a first possible slate of courses, and to the definition of the principles under which BEC should work; these were endorsed by Cabinet in November 1973:

1. BEC will work in accordance with the Development Plan and other statements of Government Policy.
2. It will work in co-operation with Governmental and non-Governmental agencies; it will not itself set up a large staff of subject specialists but will rely on people working on either a part-time basis or on secondment from other organisations for course writers, tutors and academic advice.
3. Wherever possible it will use a multi-media approach linking correspondence lessons with radio and face-to-face tuition in what has been called three-way teaching or distance teaching.
4. The College will develop relatively slowly, learning from its successes and mistakes as it does so. The build-up of its courses will therefore be gradual and the courses themselves will be varied so that the College can reach a more precise definition of the educational needs in Botswana which can best be met by its techniques of teaching.
5. Its work must be evaluated.

Philosophy

Botswana had in 1973 a dual economic strategy:

(a) the securing of rapid and large returns to the nation from intensive capital investment in mining and other viable modern industries mainly aimed at export markets;

[30] Perraton, H. (1977) *Starting the Botswana Extension College*, Cambridge: International Extension College

(b) the re-investment of the proceeds of these investments in such a manner as to promote labour intensive activities and improve services in the rural area. (Ministry of Finance and Development Planning 1973: 1)

The strategy goes beyond economic planning: Government is concerned, for example, about the social as well as the economic effects of wage-employment in the South African mines. The effects are clear enough to see: if you walk round many Botswana villages you see only women, children and old men. So many of the young men are away, either looking after cattle or working in the mines, that very heavy agricultural burdens fall on the women and the villages are deprived of those who might be the strongest and most active members of the community. From the outset, therefore, it seemed appropriate that BEC should work in nonformal education, related to rural development, as well as running examination-oriented courses. In a meeting with the chairman of the International Extension College in 1972, for example, the President, Sir Seretse Khama, himself stressed the importance of rural education as a task for BEC. This emphasis fitted with two of lEC's views. The first was a belief that traditional secondary school education fitted ill with the needs of rural communities in many parts of the world. The second, related, view was that a system of adult education, based on the needs and institutions of rural communities, might have a greater and more immediate effect on village life than the slow filtering down of the pure waters of traditional, school-based, education. In this context we thought of adult education, with Nyerere as 'learning – about anything at all which can help us to understand the environment we live in, and the manner in which we can change and use this environment in order to improve ourselves' (Nyerere 1973: 138).

From a first look at rural educational needs, there were three areas on which BEC might concentrate: on improvements to agriculture, on helping village development, and on local commercial or industrial development. In the event, we could not see the right starting point for the last of these: requests from other government departments led us to concentrate on the first two, and so to specify a first group of nonformal courses.

But, while Governments have their priorities, and a shrewd idea of their countries' needs, these may be quite different from the perceived needs of the people. We wanted to base some of our work, not on the Government's perception of rural needs, but on those seen by the people in the rural areas. Our intention was to have a course organiser, living in a chosen area long enough to enter into a dialogue with the people there and help them to articulate and define their educational needs. On the basis of these needs we would plan and design educational materials and get the organiser to stimulate their use, probably through the creation of study groups using learning materials and radio. The pattern of organisation is not all that different from that used in other educational ventures, like those of INADES in West Africa or radio learning campaigns in Tanzania. But the notion that the starting point should be dialogue, with the potential 'students' – or, better, participants – is different, and one which owes much to the ideas of Freire.

Thus Botswana's priorities, and our own policies, led us to decisions to start work on both formal and nonformal courses and to base our choices both on Government's definition of priorities and on an attempt to discover the public's view of them.

Choosing where to begin

The inadequacies of the secondary education system which Botswana inherited at independence mean that the demand for secondary school education far exceeds the supply. This has resulted in the growth of continuation classes – privately run evening schools – and in a steady public pressure on the Ministry of Education to expand secondary opportunities. In addition to those who never get to secondary school, some students leave school without getting Junior Certificate (JC) or the General Certificate of Education (GCE) and want to work for these precious qualifications by themselves afterwards. (Entry to Government service, and to many jobs in the private sector, depends on at least JC.) An obvious and early decision was to try to meet some of the demand for these qualifications. Enquiries suggested that there were more people wanting to work at JC level than at GCE, while the manpower planning demands were for an increased output of holders of the higher qualification. We therefore decided to start with JC (normally taken after three years in secondary school) and move on the GCE courses (taken after five years) later. We hoped that the production of teaching materials at these levels would have side benefits too: there might be scope for using our materials in schools, in order to increase the resources available to them.

In nonformal education we were already committed to trying a 'Villagers' better living project', based on visits to villages and dialogue within them. But, before making any progress on that project, we had two requests from the two ministries most concerned with rural development – the Ministry of Local Government and Lands and the Ministry of Agriculture. The first of these invited us to design and run a course for Village Development Committees – democratically elected institutions which exist alongside the traditional form of village rule through the chief or headman meeting in *kgotla.* (The *kgotla* is both the village meeting place and the meeting that takes place there.) The use of distance teaching seemed to make sense for a course aimed at Botswana's 400 scattered villages.

The Ministry of Agriculture invited us to work with them on a programme for 4B clubs – the Botswana equivalent of the 4H or young farmers clubs which exist in many parts of the world based ultimately on the original American 4H model. The 4B movement, with a full-time supporting staff, is the strongest and largest voluntary youth organisation in Botswana. It has clubs in almost every primary school but has had difficulty in involving out-of-school youth. Again, this programme involved working with existing institutions, with the 4B clubs, and with existing field staff, the agricultural extension staff who were already supporting their work. And the course enabled us to make a small start in agricultural education – of obvious importance in a country heavily dependent on agriculture.

A huge issue was looming on the horizon. The Chambers Feldman report showed that the country was about to face changes in land use and land tenure of the most far-reaching importance: the traditional system of holding tribal land unfenced and in common was breaking down. The Government's 1973 policy statement on the issue outlined a possible solution and said that 'an extensive educational campaign should accompany the operation, which should be a public process.' (Government of Botswana 1973: 57(b)). If BEC was going to be concerned with education which had a bearing on the fundamentals of people's lives, then it would have to meet any demands for distance teaching which arose from the changes in land policy. While in 1973 it was too early to

start on this work, there was a modest job to be done: as part of their preparation for changing, future roles, and to help them in their regular work, agricultural demonstrators needed to learn how to use maps more effectively. At the request of the Ministry of Agriculture we began to design an in-service course for agricultural demonstrators on map-reading. In 1975 we began work on the larger, and broader, programme of public education on land reform.

The college developed formal courses and teaching materials which were used both for individual students and in schools, and taught these by means of correspondence and radio with some face-to-face support. That work has continued and is a mainstay of BEC's successor institution, the Botswana College of Open and Distance Learning. This extract, however, concentrates on the college's more unusual nonformal courses.

Rural education

Over 80% of the people of Botswana live in the countryside; two-thirds of the labour force work in subsistence agriculture. Rural development had a very high priority in the 1973/78 Development Plan and, among its aims, were to increase production from the land and 'to improve social services in the rural areas (such as water supplies, education, medical and welfare services) thus leading to healthier, smaller, better educated and better fed families' (Ministry of Finance and Development Planning 1973: para 3.28). Rural education had to be high priority for BEC, if it was to keep faith with a conviction that education was concerned with raising the quality of life for ordinary people. Apart from the land tenure programme, described below, three of our first sets of activities had to do with rural education: the Villagers' better living project, the course for Village Development Committees and the course for 4B clubs. Despite their differences, these three projects had one thing in common which differentiates them from our formal courses: they were all aimed at groups of participants, working together, rather than at single individuals. This was partly because the subject matter of the courses lent itself to group work: developing a village, or co-operating in club activities essentially involve group action. There were various existing networks of groups in Botswana which provided an organisational structure for nonformal courses. And there were theoretical reasons, as well as experience elsewhere in Africa, to suggest that group learning would be appropriate. The use of groups also meant that nonliterate people could take part in our courses, provided they were members of a group which had one or more literate members as well.

Villagers' better living project

The stakes here were high enough; that is why it seems legitimate to describe the course at some length even though we have not got it working properly yet. There were three basic ideas behind the plan. The first, already touched on, was the desire to build an educational project (perhaps eventually an educational system?) on ordinary peoples' perceptions of their educational needs. The starting point for the course was to be an exploratory stage in which the course organiser would live in one or possibly two villages, getting to know the people there, and getting them to articulate their educational needs. And the next stage would be the creation of material to meet those needs, using print and radio, for them to study in appropriate groups. Behind this idea lay two others: a concern that the increasing costs of traditional education were going to impose a barrier to the expansion of primary

and secondary schooling to all, and a concern at the mismatch between traditional education and the needs of rural life. The long-term aim of the project was, therefore, to experiment with a possible approach to an alternative form of education. This is how we described the project in the planning stage:

> The new enterprise should be a nonformal, out-of-school affair instead of being based on the traditional model. Only then, if it manages without ordinary teachers and specialised buildings, will it be cheaper. Only then, also, will it be able to escape from the grip of the stereotype of a 'proper' school in which the orthodox subjects are taught in the orthodox way. If it is not seen as belonging to the same frame of reference as proper schools there should be a far better chance of introducing a new learning content related to rural needs without running up against the sort of hostility which has been so fatal in the past to many projects with a similar aim but with a less radical approach to organisation. *(Young 1973: 3)*

BEC failed to locate a Motswana who combined the educational and sociological skills with knowledge of the country to do the first enquiries which was therefore based on the findings of an English sociologist, with two local field assistants, recruited by BEC. The college faced major difficulties which are relevant to any such programme of rural education.

The definition of educational needs proved difficult: to ask people who have not undergone a traditional, western-style, process of education to separate off their educational needs from other social needs, is to impose on them a classificatory system with which they are unfamiliar. In particular, our sociologist found that the suggestions put to BEC were for a whole variety of village improvements or developments; the village people with whom she lived did not separate off their educational demands from their other physical and social needs. While they were obviously right – and tacitly supporting our own views of education – this made her job that much more difficult.

And so our first list of subjects was more arbitrary than we would have liked and it was no more than the best inference that we could make, that these were the subjects people wanted to study. But we decided to concentrate on child care, nutrition and cookery, and vegetable growing – a triad of subjects with obvious links between them. Rough cross checks suggested that these subjects, chosen because they seemed important for our trial villages, would also be of the more general interest appropriate to open circuit radio.

We then came across two difficulties, which were to plague us in most of our nonformal work to a greater or lesser extent. The first was to find appropriate course writers, familiar with the subject matter and with rural Botswana. Because of the pattern of organisation we had adopted, these people were not on the staff of BEC and we had to persuade them to work for us on a part-time basis: all were busy and few delivered their manuscripts on time.

The second was perhaps more serious and was a constraint on all our nonformal work: we found it difficult to get agreement on the most appropriate form of Setswana to use. There are at least three separate difficulties lying behind this. First, there are regional differences in Setswana of pronunciation, of vocabulary and of spelling. And there was not at this time any clear national policy leading towards standardisation which would have given us hints as to the direction in which to look for a solution. The second

difficulty is related: Setswana is widely spoken outside Botswana, notably in South Africa and the South African government does have (of course) official views on Setswana orthography. Thus, to approach a national language policy for Setswana in Botswana inevitably brings one up against major political questions of great delicacy.

Third, there is relatively little tradition of written Setswana as an educational medium: while the Bible was first published in Setswana in 1857, the country does not have the century-old tradition of vernacular newspapers, for example, enjoyed by Lesotho. The register of language used in the Bible is a very formal one, felt appropriate by its translators, and it seems that there is something of a tradition of writing Setswana very formally. Following practice elsewhere, we wanted to write our teaching materials in a much more informal, and at times colloquial register of Setswana but this is something which writers are not used to doing. Thus it was necessary to create a style of writing for which there are few precedents.

Despite these problems, we did get the bulk of the teaching material, in all three areas, written and edited by the end of 1975. But by this time pressures to undertake more clearly defined educational jobs, for other ministries, meant that the better living project repeatedly got less priority for staff time. And it was clear that, if the project was to work, considerable energy and subtlety would need to go into setting up the learning groups who were to use the materials. At this time our staff with experience of such field work were so heavily committed to the other programmes, that the start of the project had to be deferred till 1977. Only after that date will it be possible to see how far the original model for the course was sound.

Village Development Committees

Village development committees were set up after independence as a democratic system of local government at village level.

> VDCs are responsible for planning village development and for executing self-help projects. Where they exist and are functioning they prepare project lists and submit them to the District Councils, and then organise fund collections and self-help labour, for such activities as making bricks. … They are in effect planning and executive bodies for *makgotla* in the sphere of village development and welfare. *(Chambers and Feldman 1973:186-7)*

Whereas traditionally the headman or chief in *kgotla* was responsible for a whole range of activities, the Government felt after independence that the specific job of developing a village should rest with a democratically elected committee. But, of course, it is not easy to create new institutions and a conference of District Development Committees in 1972 discussed 'the numerous and well-understood and agreed problems which are known to have been encountered by VDCs throughout Botswana. These problems include lack of harmony between headman, councillors, community development assistants, VDCs, Council staff, etc; lack of standard fund-raising procedures; lack of standard methods of controlling and accounting for VDC funds; lack of simple management techniques; and failure on the part of some Council officials to conduct proper consultations and obtain genuine, meaningful undertakings from the villagers concerned prior to assuring aid donors that a project contains a self-help element'.

One of the decisions of that conference was to get a VDC handbook produced; an American visitor produced a first sketch of one and the enterprising District Development Officer in Mochudi asked some months after the conference what progress had been made with writing the handbook. It seemed clear that the handbook should be the central element of any BEC course and the Mochudi Development Officer seemed an obvious author. On 22 November 1973 he and I sat down with a civil servant from the appropriate ministry and wrote a first draft of the handbook, which then went to the 1973 District Development Conference, through a couple of revisions, and for approval to the Minister. We published it in mid 1974, in a combined English/Setswana text after the usual difficulties over translation.

A handbook by itself was only the beginning of a solution. At a course-writers workshop for various courses in January 1974 we worked on the VDC course as a case study (drawing a lot of help from our English course author who sat on his own village's VDC) and agreed that the course should consist of four elements: the handbook; weekly programmes; group meetings of the VDCs to follow the broadcasts; feedback to BEC from those meetings. In order to put flesh on these bones of a course, the Ministry of Local Government and Lands seconded to us a community development officer who then worked for a year on improving the VDC handbook, visiting district and village meetings, and preparing a series of radio programmes. For this course, which ran between March and July 1975 for a selected group of VDCs, the radio programmes were planned as a soap opera, based on two imaginary and contrasted VDCs, one effective and one ineffective. We had hoped to borrow actors from the Ministry of Agriculture who already had a panel of them with some radio experience but in the event could not do so. This proved to be a blessing in disguise: instead we used our own staff. By arranging recording times so that these fell half within, and half outside, normal working hours, it was possible for them to be paid extra for doing this: the fun of acting and of appearing on radio, coupled with the extra pay, made for a feeling of involvement on the part of our staff which would have been difficult to get any other way. Each radio programme was accompanied by a one-page `worksheet': its function was to outline the broadcast, suggest topics for discussion, and get feedback to BEC.

This multi-media approach to the training of Village Development Committees was new to Botswana so we tried it out on a pilot group of fifty-eight committees. We came up against five difficulties. First, it seemed to be necessary for us to train group leaders in a face-to-face training session before the course started; if this is generally true, it means that the amount of' training one can offer group leaders in this way is the major constraint on the scale at which one can operate in rural education. Second, interest in the course tailed off over the twelve-week period. This was perhaps connected with the third problem; we had designed the course so that it went through the whole area covered by the VDC handbook – from the constitution, to elections, to looking after money, to controlling projects. In the event this appears to have been too ambitious and to have led to a blurring of the objectives of the course. And fourth, we ran into staffing difficulties: the community development officer seconded to us was transferred to another post while the course was running so that his successor had to learn a new job at the most difficult possible moment, both for him and for us.

The fifth problem looks the most difficult to solve: we had designed the worksheets with the intention that they would give the groups some ideas of starting points for discussion

and that their responses would give us ideas about the effectiveness of the course, and about the major interests of VDCs as a starting point for successor courses. But our students did not interpret them like that: partly as a result of the wording, but probably also because of expectations about what education is like, groups interpreted discussion questions as ones to which there was a single right answer which we were seeking. Thus, in many cases, we got back not a report of the discussion but single-word, or single-sentence, responses which told us far too little about the VDCs that sent them.

These results were encouraging enough for us to want to go on and develop VDC education further and for the Ministry of Local Government and Lands to want us to do so. But they were not good enough for us to go immediately to a national programme of VDC education as we had hoped. Instead, we worked out plans for a further small-scale VDC training programme, which ran in the Kgatleng district for twenty-five committees later in 1975. Three major changes were made to the design of the course. First, it was made shorter: it ran for eight weeks instead of twelve. Second, its objectives were narrower. Instead of trying to cover all the material of the handbook it concentrated on the chapters about planning and setting up a development project. In this way we planned that VDC members would learn new information and skills while planning an actual project, and agreeing it with their community and with their District Council. The incentive would therefore be a completed project, of value to the village, and supported by Government finance.

Third, we planned the course in closer co-operation with the District Council and made greater use of Council community development staff in the running of the course. Community development staff attended the training session for group leaders at the beginning of the course, and offered support to groups as it was running. Links of this kind looked particularly important as the planning of village projects necessitates close co-operation with District Councils.

Twenty-three VDCs took part in the course; half of them completed it. Each VDC was asked to send us a report form after each broadcast but about half of them stopped doing so half way through the course. Despite this, twenty VDCs (80%) completed a project application form: at the time of writing four VDCs have completed projects and it is understood that others are still being worked on (Etherington 1976: 4-5). One side effect of the course was that villages revived earlier projects which had lapsed at some time in the past: inevitably this kind of stimulus is difficult to measure or evaluate – whether for VDCs taking part in the pilot experiment or for VDC members elsewhere in the country stimulated by the procedures. One general conclusion from the two VDC courses run by the College concerns the face-to-face element. It seems vital to train group leaders, and to do so in a face-to-face situation, and also to go on supporting VDCs by visits as the course goes on. (In the second course, the VDCs which were probably visited more often by District Council staff were also the most active in working through the course (ibid.).

In both courses, we ran into difficulties of feedback and timing. To some extent these are fixed constraints: with the extensive seasonal migration which is part of everyday life and agriculture in Botswana, it is difficult to find an ideal time for a course of this kind, and difficult for VDCs to be as effective as they would like when people are moving to and from their villages all the time. But there are more specific problems, too: While BEC is in a position to give feedback and advice to VDCs on several aspects of village development, and itself needs to know about these, the particular problems of

each village need to be resolved more locally: VDCs often need face-to-face help in choosing a good project and checking that it fits with District Council plans for their village and district. It is the function of district community development staff to provide this help, but they cannot always do so, for all interested villages, on the week-by-week basis forced on VDCs by our broadcast timetable. Similarly, the practical nature of a course aimed at planning a development project conflicts with the fixed pace of a weekly radio broadcast. Each programme requires a practical task to be done before the next programme. Some of these practical tasks involve consultation with people both within and outside the village and cannot be fitted into that weekly cycle. Perhaps as a result of these difficulties of timing, we found, again, that interest flagged in the programmes towards the end, even of the shorter period. We think the solution to these problems may lie in using cassette recordings instead of open circuit broadcasts, so as to avoid the lock-step constraint of broadcasts, and to arrange for community development field staff to act as local tutors for the course. We hope that this will both increase the day-to-day support and help which VDCs need and also indirectly improve the work of the community development staff themselves.

In the meantime, the patchy and partial success of the VDC programme is enough to encourage us to go on. There is evidence that the programme has resulted in VDCs undertaking projects that they might not have done, and doing so more effectively. The opportunities for running more courses, on more specific aspects of VDC's work – on particular kinds of projects which they want to undertake but lack specialist knowledge for example – remain as a growth point for their, and BEC's future.

4B Clubs

In a third approach to rural education BEC worked with the national network of 4B clubs for young people which had been set up in Botswana in 1967. 4B represents four Setswana words: boitshwaro (better citizen), boikanyo (trustworthy), bonatla (hard working) and Botswana. The college used similar methods, of print, radio and group study, to encourage clubs to grow fruit trees, and arranged the distribution of trees to interested 4B clubs.

Land reform

In Botswana, land has traditionally been held by the tribe in common. Today about half the total land surface is tribal land, held in this way; the other half is state land and freehold land. By tradition, too, tribal grazing land is unfenced; while land for crops is allocated to individuals or families and fenced, grazing land is farmed communally. By the early 1970s, this system was breaking down: the increased number of cattle and uncontrolled use of communal grazing were beginning to cause severe problems of erosion. In some parts of eastern Botswana there were fears of irreversible veldt degradation. At the same time there was very strong pressure by some of the wealthier cattle owners, with enough capital to develop ranches, to expand westwards into the Kgalagadi with individual control over new boreholes and therefore over the associated grazing land. The problem had been defined by consultants from the Nairobi Institute for Development Studies in 1972 (Chambers and Feldman 1973) and Government's outline policy had been sketched in 1973. In March 1975, in a major policy speech, the President said:

> The time has come to tackle a subject about which there has been a lot of talk but not much action – the better use and development of our land. As our human population and the numbers of our cattle and other livestock increase there is a growing danger that grazing will be destroyed by uncontrolled use of communal grazing areas by ever growing numbers of animals. Once grazing has been destroyed it is extremely difficult to get grass re-established. And under our communal grazing system it is in no one individual's interest to limit the number of his animals. If one man takes his cattle off, someone else moves his own cattle in. Unless livestock numbers are somehow tied to specific grazing areas no one has an incentive to control grazing. … We are faced with a situation which demands action. *(Government of Botswana 1975: para. 1)*

Four months later the Government published a White Paper setting out its policy, with two basic objectives:

a) To make grazing control, better range management and increased productivity possible. The improved management system must start with fenced areas and land over which exclusive rights are recognised. Therefore under certain conditions, groups and individuals must be granted exclusive rights to land.

b) To safeguard the interests of those who own only a few cattle or none at all. *(ibid.: para 20)*

Thus it was intended that the policy should couple opportunities for better land management and increased production with social equity. This was to be done by dividing tribal grazing land into three categories: communal land, which would continue to be farmed communally as before, although with the possibility for groups – but not individuals – to fence areas by agreement; commercial land, for which leases would be provided; and reserved land which would not be used at present but reserved for future generations. While this policy was being laid down nationally, the way it was implemented was a matter for each area and district to decide: Land Boards, which had taken over the responsibility for allocating land from the chiefs after independence, were to have this responsibility. The policy is set out in figure 5.1, prepared at the time by BEC and incorporated in the White Paper.

Discussions on the new policy had continued in Government from December 1974 to the publication of the White Paper and parliamentary approval of the policy in July 1975. In April 1975 BEC was invited to take part in the process of public information which Government wanted to run in connection with the new policy. This was the brief:

> The purpose of the public information campaign must be made quite clear. It is not intended to steamroller public opinion. Most members of the public know nothing about land development policy. We have now reached the stage of deciding how to implement grazing land policy, provided it receives widespread public support. But more than explanation is involved. Government wants to encourage wide public discussion of the policy. And so the first aim of the public information programme is to provide information on the policy. But it has three other aims as well: to stimulate public discussion; to provide information to Land Boards, District Councils, and Central Government on how people feel the policy should be implemented locally; and to start a long process

of helping people to know how they can benefit from the policy by, for example, forming groups or syndicates of small cattle owners. Thus the programme of information and consultation will encourage comments, ideas and reactions from the districts, in order to make implementation as smooth as possible. *(ibid.: para 56)*

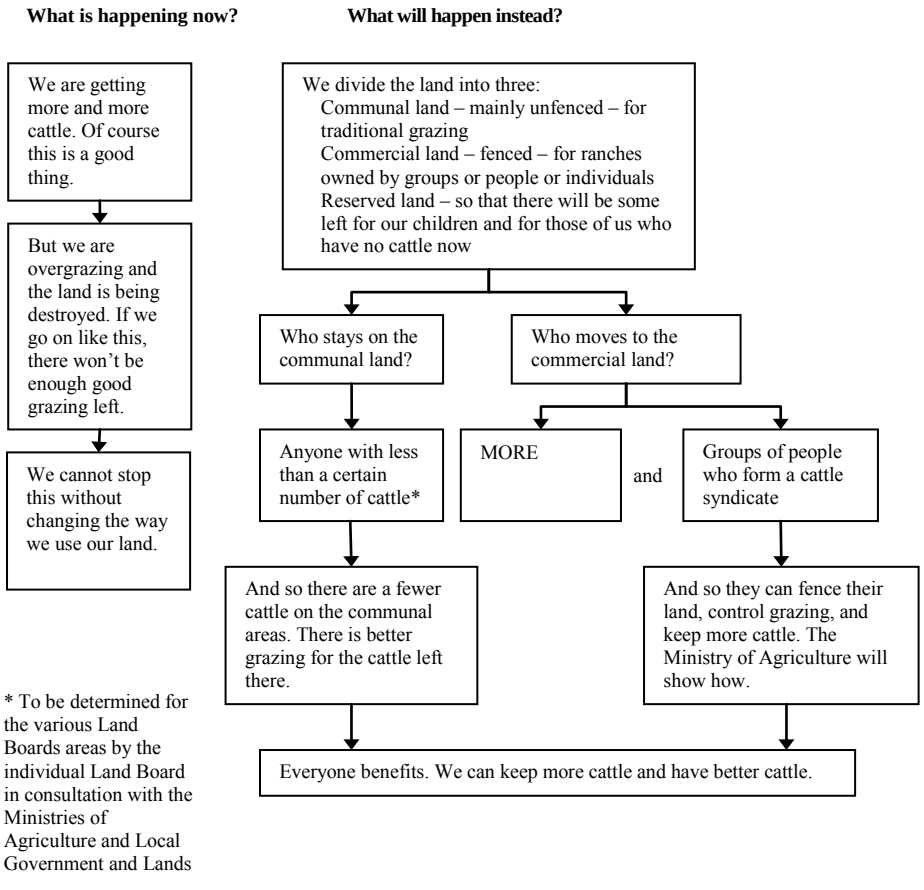

Figure 5.1: National policy for tribal grazing land

This was, in a sense, a request we had been waiting for. When we started work in 1973, land reform was already clearly on its way and the scale of the educational work to be done with it was already becoming clear. As evidence of our concern for this, and as a way of beginning to work in inservice education and with the Ministry of Agriculture, we began work in 1974 on a map-reading course for agricultural demonstrators. Map-reading was a skill which they were beginning to need in their everyday work, as it became more systematised and more closely and effectively controlled through the Ministry of Agriculture's extension division. But it was also a skill, which was to be of major importance to them, and eventually to the staff and members of Land Boards, as land was allocated

under the new system. We launched the course for agricultural demonstrators in April 1975; some 170 of them plus 20 others enrolled and studied by following correspondence lessons, prepared by BEC, with tutorial advice from their district agricultural officers whom they met monthly for a planning meetitng. At the time of writing the course is still running and it is too soon to say anything about its effectiveness.

The running of that course, and preliminary discussions about the educational programme for land reform which began early in 1975 under the auspices of the Rural Extension Co-ordinating Committee (RECC) made it clear that there were a variety of different jobs to be done. In order to plan the whole educational programme, RECC set up a sub-committee which consisted of representatives of the two ministries concerned (Agriculture and Local Government and Lands) and the extension agencies which would work on it. It was appropriately (and officially) called the Grazing Committee. The largest job was to inform the public about the new land policies, their implications, and how ordinary people could benefit from them. But it was clear that the running of that programme would demand the work of many agencies, and in particular the work of extension agents in the field, who would themselves need to be trained on the implications of the policy – and perhaps on the educational techniques they would need to use.

The public education programme

The size of the potential audience led us to turn to a Tanzanian solution which followed an earlier project run by the university's department of extramural studies (DEMS), and it was agreed to run a radio learning group programme on tribal grazing land. Decisions about this were taken in mid 1975; as the policy was announced by the President in July 1975 it was impossible to plan and run a programme for the ideal time – to follow immediately after the Presidential speech and parliamentary debate. The programme was therefore timed for mid-1976, when the bulk of the harvest should be over and many people back in their villages.

The programme was designed to consist of a number of separate elements. The basic intention was that groups of up to about twenty people would meet in their villages, listen to a radio broadcast about the tribal grazing land policy, discuss it, and respond to it. The response was important for both educational and political reasons. In order to achieve this, plans were drawn up to support the radio learning groups through three media – print, radio and face-to-face. Some seventy-five separate printed items were produced as the plans for the course got under way but four were of central importance for the learning groups. Each group received a copy of what was intended to be a simplified version of the Government policy, produced in both English and Setswana; a study guide; a set of report forms for feedback about each programme; and a flip chart of large-scale photographs to illustrate the broadcasts. From 14 June onwards, there were radio programmes which ran for eight weeks. Each programme was in two parts. The first fifteen minutes were run on a magazine basis, and were intended to be of interest to participants as they gathered for the group meeting. The hard information was put into the second part of the programmes, prepared well in advance of the broadcast date. Finally, very great energies went into providing appropriate face-to-face support for groups. Some 3,500 group leaders were identified and trained in twenty-three group leader sessions organised in fourteen villages or towns throughout the country. Extension agents from all extension cadres were also directed by their ministries to take part in the programme and provide support for the radio learning groups. Thus the

programme produced as a side effect a degree of co-operation in the field between extension agencies which is more difficult to achieve in their regular, everyday, subject-specific, work. The use of such extension workers, and the mobilisation and training of group leaders, may be of long-term significance in a country which lacks cadres of political workers who can be mobilised for adult education.

The organisation of the course, and the various elements composing it, were tried out in a pilot programme lasting five weeks with about a hundred groups in December 1975. The groups were all in the western Ngwaketse, an area of the country which was ahead of most of Botswana in moving towards a new system of fenced ranching. The pilot, which used cassette tape recorders in place of radios, was useful in revealing the strengths and weaknesses of the educational design.

A fundamental aim of the programme was to encourage discussion of the policy, both for public information and so that both central and local government could get reactions on the policy and on its implementation. Such feedback was needed for two kinds of reason and in two different places. It was, of course, necessary for BEC so that the College knew how the course was going, and could modify later educational work and run feedback radio programmes. Such educational feedback is relatively familiar. But this was a political programme as well as an educational programme: feedback was needed by the relevant ministries of Government so that they could know in more detail how the policy should be implemented and what public reaction to it was. Furthermore, this information was needed both by Central Government, for national decision-making, and by District Councils and Land Boards as they would have the job of doing the allocation of land under the new policy. Thus it was necessary to devise a feedback system which provided such feedback both nationally and locally.

In order to get back the needed information, agreement was reached by the ministries concerned (Finance and Development Planning, Agriculture, and Local Government and Lands) with the College on a number of key questions to be considered by the study groups. Once the programme had started, arrangements were made for the report forms to be analysed as they came back from groups; this analysis had a number of different purposes. First, it enabled feedback elements, responses to frequently raised questions and the like, to be included in the radio programmes as they were produced.

Second, they were to provide a national view of reaction to the land policy for the Cabinet; the analysis was also to be done on a district level so that District Councils could similarly be informed about opinion in their districts. Over and above this formal analysis, BEC's evaluation unit carried out a number of before-and-after surveys, and set up arrangements for participant observation of a number of groups as the programme went on. It had originally been hoped to arrange for individual learning groups to report, village by village, through their *kgotla* or Village Development Committee, on their village's views on the policy as it would affect them and as it would be implemented for their village. But, in the event, logistical reasons ruled this out.

Thus, enough information is being collected to enable an informed and honest evaluation of the programme to be made. At the time of writing it is too early to do this: I visited a number of learning groups, meeting on a cold June evening to listen to the first radio programmes, only after the first draft of this report had been finished. Two comments seem appropriate at this stage. First, while the numbers participating in

groups (perhaps 15,000 out of an adult population of 400,000) were smaller than the early estimates of aiming at a quarter of the adult population, they suggest that the programme did succeed in reaching very large numbers of people and, presumably, stimulating some kind of informed discussion. Second, the results of the pilot programme showed that village discussions were raising, in a sharply defined way, exactly those difficult issues of policy which Government will have to resolve as it implements the policy. These are modest omens of success for a programme intended to be one of consultation as well as education.

Looking ahead

The tribal grazing land programme may be the most significant piece of work BEC has yet done. It has certainly demonstrated how BEC's work can be linked with that of other agencies, like the various government extension staffs, to the benefit of both. And it may suggest ways in which education and social and political developments can be yoked together. The next stages of this work may be even more important, if BEC goes anywhere towards the major objective of enabling the public to benefit from the policy. For it is clear that the enclosure process initiated by the policy will result in major changes in agricultural practice throughout Botswana. In fostering those changes, the agricultural extension organisation will, of course, have a key role. But, if the evidence of co-operation between them and BEC on tribal grazing land is anything to go by, there may be vitally important jobs to be done using distance teaching methods. BEC remains a potential resource for people in the villages who will need new information as their way of life changes over the next few decades.

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6 The virtual wandering scholar: policy issues for international higher education

This paper was delivered as the keynote for the annual conference of the Higher Education Research and Development Society of Australasia in 1997, when the society took internationalism as the conference theme.[31] *In contrast with the previous paper its focus is therefore international, rather than national, and on higher education. It picks up issues about the research agenda, discussed in part one, and in this different context discusses the policy issues which the new technologies were now placing on the international educational agenda.*

Universities are remarkably durable. Clark Kerr pointed out that, of 75 institutions founded before 1520 and still surviving with recognisably similar functions, 60 are universities. And it is not just the trappings of academic dress and titles in Latin that remain, as their main activities also go a long way back: lectures have been delivered and heard since the middle ages; the disputation has become the seminar (Casper 1996: 70), academic publishing houses have been here for centuries. While this paper examines some of the forces that are changing universities, its starting point is to recognise that durability. And to acclaim it. While universities have a range of functions, as institutions 'whose primary allegiance is to cognitive rationality' (Chapman 1983: 1) they provide a mark of civilisation without which our society would be not merely impoverished but bereft.

Of course they have changed since the middle ages, even in my home town of Cambridge. Humboldt's redefinition of the research university, Morrill's vision of the land grant university, the French creation of their grandes écoles have all brought in new ideas, suggested new models. Throughout the world, two major changes are affecting much of higher education: expansion and a redefinition of the nature of their students.

Our changing context

In rich countries and poor the numbers in higher education have been growing, both absolutely and as a proportion of the age group. One recent review notes that,

> What Japan, the United States, Canada and Norway have achieved – a quarter or more of each age cohort graduating – other OECD countries are now setting themselves as targets as they commit themselves to policies of mass post-secondary education. But all countries are experiencing funding limitations. Their governments have a heightened concern for the efficient use of scarce resources and value for money from what cannot avoid being the most expensive sector of national education systems. *(Renwick 1994: 60)*

As universities have been expanding so their students have been changing. Demographic trends, changes in technology and patterns of employment, and public demand have all given a new impetus to continuing education. The change should not be exaggerated. The majority of students, in many universities, are still young people between 18 and 25,

[31] Perraton, H. (1997) 'The virtual wandering scholar: policy issues for international higher education' Keynote speaker for HERDSA conference on *Advancing international perspectives*, Adelaide, 8-11 July 1997

studying full-time and universities still have as one of their long-standing functions providing an enjoyable lifestyle for a minority of privileged adolescents (cf. Stone 1983). But the numbers of mature students, of students on courses of continuing education, and of part-time students have been rising in industrialised countries and we may assume the trend will continue.

At the same time two other, related, influences are bearing upon higher education: globalisation and changes in communication technology. The move towards a global economy is affecting both the content of higher education, as it responds to the demands of that economy, and its methods of working. At the same time 'throughout the world, information and telecommunications technologies are bringing about a new industrial revolution which already looks to be as important and radical as those which preceded it' (Bangemann, quoted in European Commission 1996a: 22). Part of its significance for education is that we have a 'new world information economy' (Carnoy et al. 1993: 6) with profound significance for our economies as well as for the way we run our systems of education.

The purpose of this paper is to tease out some of the policy questions for higher education that follow from this process and ask about the research that might illuminate policy. It does so by concentrating on open and distance learning – an area of education which is sensitive to changes in communication technology and where barriers of distance are less significant than on a conventional campus. (But I will look over my shoulder from time to time at the conventional university.) It concentrates, too, very much more on questions of management and of structure than on those of curriculum, leaving aside huge and subtle questions about how globalisation should be reflected in what we learn. It does so by examining two contrasts. One is between the promise of international education, transformed by globalisation and an information revolution, and what has actually been achieved. The second is between what we know from existing research on open and distance learning and what we still need to find out. From these two contrasts we suggest an agenda designed to illuminate policy.

Student mobility

How far is higher education already international and how has it changed over the last few decades?

The simplest indicator of internationalisation is student mobility. From the wandering scholars of the middle ages, through the disturbed 17th century when 'at least two universities, the ones in Padua and Leyden, had multinational faculties and student bodies' (Husén 1990: 154) up to the present, universities have drawn some of their students internationally. If higher education is becoming more international then we might expect this to be marked by a significant increase in student mobility. Efforts have been made to promote and encourage it. Within the European Union, the Erasmus programme has as its aim to allow 10 per cent of students in higher education the opportunity of studying in a different country. In 1995/96 160,470 did so spending a total of 1,085,618 student months abroad (European Commission 1996b). But this figure needs to be set against a total of 11 million students in higher education (DGXXII: 1997), suggesting that if, on average, courses of higher education last for three years, Erasmus is, as yet, reaching only 4 per cent of European students. UNESCO has in fact concluded that, 'the total number of students in the world studying outside their countries of origin is increasing at a slower rate than the growth

of world enrolment in formal education generally or in the higher education sector alone. Thus the world's educational enrolment is becoming less "international" in character' (UNESCO 1993: 139). While both Australia and Britain have higher proportions of overseas students than the average found by UNESCO (3 per cent in developed countries (ibid.)), the figures in table 6.1 suggest that the proportions in Britain have been remarkably stable over the years.

But hidden within them is a more complex story. Until 1967, Britain allowed overseas students access to its universities at the same level of fee as home students. Higher, though still modest, fees were introduced in that year. They were increased in 1975 and raised in subsequent years ahead of inflation until in 1980 full-cost fees were introduced. In 1980, too, Australian students were required to pay an annual overseas student charge (Commonwealth Standing Committee on Student Mobility 1982: 3-4). Gradually over the years since then, full-cost fees have become the norm in the four industrialised countries of the Commonwealth. For ten years, from 1982 to 1992, the Commonwealth Secretariat continued to make the case that the industrialised countries were not just abandoning educational links of current value and historical significance but were acting against their own interest in doing so. But, while scholarship programmes mean that mobility of students between poor and rich countries remains a feature of Commonwealth universities, the Secretariat made virtually no progress in arguing for a favourable fee regime for Commonwealth students. Symbolically the last report of the Standing Committee on Student Mobility has the subtitle 'The final frustration'. While in 1979 54 per cent of overseas students in British higher education were from the Commonwealth, the proportion had fallen to 31 per cent in 1994. Over the same period the proportion from the European Community (now the European Union) rose from 4 per cent to 43 per cent, a figure which excludes many Erasmus students whose period of study in Britain is generally shorter than that captured in the statistics (Department of Education and Science, various years).

Table 6.1: British student mobility figures

Date	*Student body*	*No. of overseas students*	*Total no. of students*	*Overseas students per cent*	*Notes*
1938-39	Full-time, university, GB	5,210	50,000	10.4	a
1954-55	Full-time, university, GB	8,610	81,710	10.5	a
1962-63	Full-time, university, GB	13,750	118,400	11.6	a
1979-80	Full-time, higher education, UK	56,200	523,600	10.7	b
1989-90	Full-time, higher education, UK	72,800	689,100	10.6	b
1994-95	Full-time, higher education, UK	126,200	1,153,900	10.9	b

Notes: a. Robbins Report 1963
b. Department of Education and Science/Department for Education various years

At least within Britain, then, the figures on student mobility suggest that our education is not becoming more international and that regionalisation is a more important process than internationalisation. The Australian figures tell a similar story. The financial benefits to universities of recruiting full-fee international students mean that 'most universities saw little option but to engage in the pursuit of revenue through competitive marketing and student recruitment programs in Asia' (Smart and Ang 1996). The result has been that there has been a dramatic increase in students over the last decade but with a shift away from historic Commonwealth links and towards regional ones.

Thus, in Australia and Britain alike, we have two forces at play: a growing regionalisation, which has tended to displace an earlier international tradition, and a pressure for individual institutions to see foreign students in terms of revenue generation. The story of Commonwealth student mobility highlights the contrast between the advance of European student mobility and its Commonwealth decline: despite the existence of the Commonwealth Secretariat, and virtuous resolutions from Commonwealth Heads of Government, there is no agency that could get action on behalf of the international interests of students, especially in developing Commonwealth countries, wanting to study abroad.

The internationalisation of open and distance learning

On the face of it, open and distance learning and the application of communication technology to education, lends itself to internationalisation. Various different actors have been exploring the ways in which the new technologies can carry education across frontiers.

One group of actors are existing international agencies. The possibility of promoting Commonwealth cooperation through these technologies led the same Standing Committee on Student Mobility to launch enquiries into the possibilities of Commonwealth cooperation in open and distance learning (Commonwealth Standing Committee on Student Mobility 1983: 16-17). The Briggs group, whose work carried forward this idea, noted that, 'There is no inherent reason ... why teaching at a distance through communication technologies need stop at national frontiers. Indeed, the very reverse is true in that the technologies themselves are global and recognise no frontiers' (Briggs et al. 1987: 10). The following years have seen the establishment of the Commonwealth of Learning, its francophone equivalent (*le Consortium International Francophone de Formation à Distance* or CIFFAD), and the European Commission open and distance learning strand within its Socrates programme, all dedicated to international cooperation in open and distance learning.

The Commonwealth of Learning and CIFFAD were established by decisions of heads of government, of the Commonwealth and *la francophonie* respectively, at their separate meetings in Canada in 1987. Both agencies started with broad aims. Commonwealth heads of government had before them the Briggs report recommending the creation of the 'University of the Commonwealth for Co-operation in Distance Education'. Its aims were broadly defined 'to widen access to education, to share resources, to raise educational quality and to support the mobility of ideas, of teaching, of relevant research and of people' (Briggs et al. 1987: 60). International cooperative activity was of the essence: 'it would foster the development of common courses for use throughout the Commonwealth to meet shared educational needs. It would offer students the opportunity of access to international education from their own home

locality. It would complement and support Commonwealth student mobility' (ibid.: 62). Heads of government would not go that far: the Commonwealth of Learning was established as an intergovernmental agency but not as a university. Its functions were formally defined in its Memorandum of Understanding in 1988 but, in practice, have evolved as its work has developed since then. In its first five years the main emphasis of its work was on technical assistance to distance-education projects in developing countries rather than moves towards the grand design of Commonwealth cooperation.

The story of CIFFAD is rather similar. Its first information bulletin set as its objectives

> a) to set in place a cooperative network between francophone institutions concerned with distance education;
>
> b) within member countries to support the development of distance education through the sharing of information and both pedagogical and technical resources;
>
> c) to offer technical and financial support to projects consistent with CIFFAD's aims and the criteria for their acceptance which it has laid down.
>
> *(CIFFAD 1991)*

In practice, as time has gone on, like the Commonwealth of Learning, it has concentrated mainly on technical assistance to support the development of distance education within French-speaking developing countries.

The other significant international actor is the European Union. A series of policy documents have argued that open and distance learning, and the use of telematics, can bring significant economic benefits to Europe by strengthening education and training. They have also argued that there will be European added value in developing the new technologies across frontiers (cf. Tait 1996). The European Commission's task force on 'Educational software and multimedia', for example, in 1996 recommended a community action plan that would ensure that by 2000 all teachers could incorporate multimedia materials into their practice, school children, adults and libraries should have access to such materials, all universities should have access to networks allowing the exchange of materials and every company should have access to quality multimedia resources 'thereby creating a virtual "open university for industry"' (European Commission 1996c: 6).

Policy documents have been matched by programmes and budgets: 'COMMETT 1, DELTA, EUROTECHNET and networks like SATURN had priorities in the fields of new technologies for learning, including computer-assisted multimedia, and satellite, and an emphasis on the linking of education and business and industry' (Tait 1996: 224). More recently, support for open and distance learning within education and training has been brought within the European Socrates and Leonardo programmes and run alongside other activities devoted to promoting European integration and economic competitiveness.

These programmes are developing and changing fast. The first open and distance learning projects within the Commission's Socrates programme – its major vehicle for general support to education – are barely two years old and it is too early to predict, from them, the shape of pan-European open and distance learning in the future. But we can draw two conclusions from their record. First, while the cluster of projects fit with policies laid down by the European Commission, they do not form a programme which it has shaped; they are not the first part of a European curriculum. Nor could they be: the European Commission is a small agency, with quite limited resources in terms of staff, working with

national governments jealous of their own responsibilities. Thus the early activity is one of piecemeal development, within priorities that have been determined for Europe as a whole, not a grand design for, say, an open university of Europe.

The second conclusion is that the idea of such a university, which has been floated more than once, remains deeply unpopular among those who might see it as a rival. The European Association of Distance Teaching Universities successfully argued that such a proposal should be abandoned as a network of the existing institutions could do all that was needed (ibid.: 226). (The British extramural boards were arguing the same, happily with no success, when the British Open University was proposed.)

Other international agencies are beginning to look at the potential of open and distance learning across frontiers. The World Bank in 1988 suggested the establishment of two distance-education centres for sub-Saharan Africa, one to operate in French and one in English (World Bank 1988) More recently it has developed proposals for an African Virtual University and explored the possibilities of international collaboration in Latin America.

The other major actors are, however individual institutions and the private sector. Again, much of the action has focused on regional development. The Open University in Britain has made its courses available to students throughout the European Union. (Indeed, it might be open to legal challenge if it did not). Australian universities seem, from afar, to have concentrated their recruitment of open and distance learning students on Asia. Alongside the international recruitment of students there has been a growth in the franchising of courses from one institution to another. At the same time, from North America, the National Technological University is the front runner in a number of institutions making courses available on satellite, available already within their own region, and potentially throughout the world. Within the private sector, Mind Extension University offers courses on open broadcast television and the opportunity of enrolling on them both within the United States and well beyond.

There are, then, the beginnings of a system of international open and distance learning. But they are only the beginnings; as with conventional education, progress towards internationalisation in open and distance learning has been hesitant and restricted. Furthermore, the development of virtual student mobility, made possible through the new technologies, parallels that of conventional student mobility. Regional developments look more significant than global. And market forces, the pursuit of economic competitiveness and the financial needs of universities all seem to be playing a stronger role than academic values of international cooperation and exchange. There is therefore a contrast between the quite limited progress that has been made and the vision of a university, transformed by globalisation and the new communication technologies, able to make its resources more widely and freely available than ever before.

Towards the research agenda

We turn to the second contrast, between the existing research findings on open and distance learning, including the use of communication technology in education, and what remains on its agenda. This analysis is based on work carried out by my own organisation, the International Research Foundation for Open Learning. In 1995-96 we carried out a feasibility study, funded by the Leverhulme Trust, on the scope and

purpose of a possible research institute.[32] Our starting point was an observation, made at the 25th anniversary of the British Open University, that while open and distance learning had flourished over the previous quarter century, research had lagged behind (Young 1994). Our enquiries over the next year confirmed that general view and enabled us to refine it. Existing research has told us a lot about the audiences of open and distance learning. We have a wealth of case-study literature about how particular institutions teach students. It has told us a great deal at a pragmatic level – though little illuminated by theory – about how to develop effective teaching materials and create support structures for students. We know something about the circumstances in which open and distance learning is likely to be cost effective. But, in contrast, there is much less work on broad policy issues concerning open and distance learning and a shortage of studies that move from a description of a particular use of open and distance learning to generalisable conclusions about it. We therefore drew a distinction between the context of open learning and its application in shaping our programme of research.

Questions about the context of open and distance learning concern the purposes for its use, its role alongside other forms of education and its outcomes. The questions cluster round issues about the legitimacy, quality, effectiveness and outputs of open and distance learning that are of particular significance for policy makers. Answers here will help decisions about whether or not to use open and distance learning and identify the conditions under which it is likely to be at an advantage or disadvantage when compared with conventional forms of education. Most of the existing research in this area has comprised economic studies of the cost effectiveness of open and distance-learning programmes.

In considering the application of open and distance learning we will address issues about the most appropriate ways of using open and distance learning for a given audience and purpose. Many of the questions at this level are about choices of methodology within open and distance learning, once a decision has been taken about its legitimacy for a given purpose. The principal users of research on applications are practitioners (Perraton 1997:19).

In the policy area we identified as among our priorities work on the political economy of open and distance learning, on its purposes outcomes and costs, and on internationalisation. In considering its applications we see a need for research that falls under three headings – management, teaching, learning and assessment, and communication technology.

Some of this work will fall mainly within national frontiers. We are, for example, working with the University of Namibia on research proposals on ways of supporting extremely remote students. The main benefits of that work will flow to Namibia but we are, of course, interested in their application elsewhere. Other parts of our work start from an international perspective. Thus in another project we are investigating the cost effectiveness of various uses of open and distance learning within the European Union as part of the Socrates programme.

Our review of existing research, and of international needs for fuller understanding of open and distance learning, makes it possible to suggest, from a long shopping list, four

[32] See Paper 4 above.

themes, which subsume others, that are relevant to the internationalisation of higher education: poverty, technology, curriculum, governance. All demand resolution at more than one level.

First, will there be room for the poor in open and distance learning? The question looks surprising. when we

> remember the pedigree of most distance-education enterprises. They are heirs to the mechanics institutes, circulating libraries, correspondence schools, evening classes, folk high schools, summer schools, extra-mural educational services and many others that have their origin in the 19th century. Their common aim has been to spread enlightenment, knowledge and instruction to men and women who, usually for lack of money and the necessary formal qualifications, would otherwise be prevented from studying for higher educational awards. *(Renwick 1994:58)*

But open and distance learning now faces new fiscal challenges. It makes greater use of technology. Even within national frontiers this can create barriers: the British Open University now requires students on some courses to have access to computer technology that will cost them around £1000 (US$1600). At the same time, as public budgets for education have been squeezed, so students are more likely to be expected to pay for their own education, especially if they are studying in mid-career or to change direction. Once we move beyond national frontiers, the question becomes more complex. While it is becoming technologically possible to follow courses of metropolitan institutions no matter where you are located, the problems of paying for them become greater.

There is a broader question about what we are offering the poor. Klees has argued that,

> Distance education systems, from a political economy point of view, have thus usually been seen as giving a second-class, inferior education to those allowed into education last, namely, those who are hardest to reach and frequently the most disadvantaged. To add insult to injury, cost-recovery efforts have usually been higher in distance education systems, so disadvantaged students have ended up paying more for their education than those in conventional schools. ... Indeed, more broadly, distance education systems have been seen to help maintain the stability of unfair societies by legitimating what is only a pretence of equal opportunity. *(Klees 1995: 403)*

One research issue defines itself: do the practitioners of open and distance learning recognise and accept this picture of a second-rate form of education; can they – to revert to an issue touched on but not opened up just now – examine the process of their form of education to confirm or refute the description?

While awaiting the results of that research enterprise, two levels of question arise when we look at the issue from an international perspective. The first set asks about the structures that will allow poor people, or poor countries, access to learning so that the advances in technology do not widen the distance between rich and poor. I will come back to this again in asking questions about governance. The second level of question is about short-term and practical measures of fees and scholarships: can we find ways of funding off-shore students for open and distance learning? For, while there are limited

scholarship funds for conventional student mobility, students wanting to follow an off-shore distance-education course often find no parallel institutional system.

The next issue on my international agenda is closely linked: how can we make best use of the technology? It is easy enough to write the catalogue of technologies. We can teach through print, or by broadcast, or by computer, or through the Internet, or face to face. But institutions in developing countries – perhaps even institutions in industrialised ones – face severe difficulties in determining how to allocate resources to one technology or another. There are few disinterested sources of information on the comparative merits of alternative technologies. It was, for example, by no means clear to the University of the West Indies when it was recently making decisions about updating its audio teleconference system whether it should stick with audio, add video, move straight to computer-based links, or put its faith in direct broadcasting satellites that were about to become available. Questions of the changing technology, of economics, of culture, and of one's relation with the commercial sector all cluster round this issue. They deserve more space than they are given here.

My third question asks how will we put together the curriculum? Learners can increasingly find educational materials in multimedia format, through a variety of channels and will be able to do so internationally as well as nationally. Some teaching material is already available on the Internet from both public and private-sector institutions; other materials are available commercially; open and distance learning institutions are beginning to use the world wide web to distribute their courses. These changes accelerate the process of moving away from the notion of the teacher as the provider of knowledge and of the institutional library as being the main other source of information. But they pose a range of issues for the education service which can be subsumed in two, related, questions. First, as learning demands more than simply having access to information, how can we help learners to make effective use of learning materials available electronically and, second, what in turn does this imply for the shape, activities, and organisational structure of a school, college or university?

Again, it may be useful to distinguish between long-term issues about the shape of the college of the future and the immediate and short-term issues about access, intellectual property, and quality control.

All three of the questions on my agenda lead into the fourth: how should we govern international education?

Medieval universities grew up asserting their need for autonomy and freedom from control by civic or state authority. Cambridge University had its own courts, which lost their power over other citizens of the town only a century ago; it nominated its own councillors to the city council until 1974. Of course there are other traditions: Edinburgh University was run by the city council while local government responsibility for the then polytechnics, comparable to the Australian colleges of advanced education, ended only in the early 1990s. The other tradition reminds us of universities' role in meeting the educational and research needs of their host community and its economy.

Van Vught distinguishes between two approaches to university governance,

> the state control model and the state supervising model. The state control model is traditionally found in the higher education systems of the European continent. It is a combination of the authority of the state bureaucracy and faculty gilds. ... The national ministry of education regulates the access conditions, the curriculum, the

> degree requirements, the examination systems, the appointment and remuneration of academic staff etc. ... The overwhelming power of the state is combined with a strong authority at the level of the senior chaired professors, who hold considerable power at the lower level of the system. ...
>
> The state supervising model has its roots both in the US higher education system and in the traditional British higher education system. The 'American and British models' show far less governmental influence on higher education than the conventional model ... The traditional British model can still serve as a conceptual tool to describe limited state influence. It is a combination of the authority of faculty gilds and a modest amount of influence of trustees and administrators at the institutional level (vice-chancellors). *(van Vught 1994: 331-2)*

Debates about the strength and weakness of the alternative models are more than abstract and historical. In South Africa, for example, the National Commission on Higher Education used just this analysis in order to produce proposals for a system of cooperative governance that would reconcile academic freedom, institutional autonomy and a responsiveness to national, post-apartheid, needs (Reddy 1996).

But these debates, like our national debates on university governance and funding, are conducted almost entirely within national boundaries. This probably did not matter when the wandering scholar represented the only form of international education. While there was doubtless hardship when he (it was usually a he) adapted from the norms of Paris to those of Oxford, or even of Cambridge to Adelaide, these were of no great significance. Self-governing communities of scholars could, at least to some extent, be relied upon to look after students as well as tutors; it was in their interest to protect the next generation of their own. But we have hinted at, and can identify, a range of issues concerning international education where neither the traditions of university governance, nor the free play of a very imperfect market, can guarantee outcomes that protect international or foreign interests as well as national or institutional ones.

Education here reflects international realities and the growing recognition that the institutions of the nation state, and of individual entities within it, do not fit with our social needs. The general point was made by the Commission on Global Governance:

> Most governments accept responsibility for the provision of public goods such as policing and justice, financial stability, or environmental protection; to do otherwise would be to abandon essential functions of a state. The same responsibility applies – but is less readily acknowledged – at an international level ... The growing interdependence of the global economy and environment increases both the benefits of providing these international public goods and the penalties for neglecting them. *(Commission on Global Governance 1995: 150-1)*

The Commission does not refer specifically to education among these public goods but does see them as including an open system for trade and technology transfer, common standards and technical specifications and 'equity and social cohesion: through economic cooperation in its widest sense'. There is an echo here of the clauses in the Treaty of Rome that led the European Union from a concern with the mobility of labour and regional economic development to activity in training and then to giving formal responsibility to the European Commission for some educational activity under the treaty of Maastricht.

Thus we have a set of forces – globalisation and the information revolution – that are making education more international. Frontiers no longer matter. And yet we lack mechanisms of governance to guide or regulate the process. Neither individual universities, nor the existing international institutions, nor state governments are competent. At the same time the experience of international education so far shows some of the things that need to be done. At the more immediate and practical of my two levels there are issues like determining fee policy for international enrolment that balances institutional priorities with equity; supervising arrangements for academic recognition and transfer; locating and allocating resources for course development that may be justifiable on a regional or international scale but is not on a national one; protecting the interest of the uninformed student who cannot tell from an advertisement whether something is reputable or a degree mill; developing protocols for the franchising of courses; balancing intellectual property interests against the free flow of ideas. It is easy enough to list the issues, and not too difficult to explore ways in which they might be addressed. In doing so we might seek to draw from both traditions of university governance as we seek a way of establishing, at the minimum, international codes of acceptable practice where education runs across frontiers.

But at the level of policy it is more difficult to work out the kind of structure and set of institutional arrangements that would be appropriate to defend the international interest in this area. The argument of this paper is that our organisational needs go beyond those that are already being met by UNESCO or the specialist agencies like the Commonwealth of Learning or CIFFAD, or bodies like the Association of Commonwealth Universities and regional associations. There is obviously room for them to have an expanded role and this paper is in no sense an argument for creating a new institution or association. Its purpose is to suggest a collective exploration of new ways of looking at and after international education.

That exploration might be guided by four principles. The first is that there is still merit in the idea of a self-governing community of scholars and any new structure should respect the idea that academic decisions belong with academics. Sometimes in history universities have merited more trust than governments. The second is, in contrast, that there is an international interest in the free and universal development of education which is widely recognised by governments and by the private sector. There is a general, though not universal, view that, for example, 'the research universities with an important role in the training of future national leaders for the public and private sectors both in the United States and abroad – now have a central responsibility to prepare their students adequately for the global environment in which they will participate throughout their professional careers' (Skolnikoff 1993: 233). We will have allies in government and must devise a structure that they can live with. We will be helped in doing so if the national benefits of international cooperation are made obvious. The third is subsidiarity, the principle that the centre is subsidiary to the periphery so that decisions are taken at a higher level in a hierarchy of institutions only where there are good reasons of policy for this. And the fourth is, of course, finance. All international agencies lack resources. Our concerns for internationalism in education only mirror those of the international community generally. Various proposals have been made for refinancing the United Nations and its agencies, such as the attractive suggestion of imposing the Tobin tax on foreign exchange transactions (cf. Commission on Global Governance 1995: 217-21). I would simply argue here that proposals for new activities should be realistic about funding.

Conclusion

Globalisation is seen sometimes as threat, sometimes as promise. The threat is of an apparently bland and uniform facade, culturally dominated by 100 indistinguishable television channels, behind which the rich countries of the world extend their global mastery over the poor. The promise is of a resolution of the conflicts that have ravished the globe and of the conservation and use of its resources in the interests of us all. My first conclusion is that, while education has the potential of becoming more global, it is doing so hesitantly and almost against the grain. Within conventional education we have not generally increased the proportion of students moving from one country to another. Where there have been increases, the motivation has tended to be financial as much as educational. Despite the talk of a new information age, most nonconventional education, even when using technologies that could make it international, remains within national frontiers. Regionalism looks a stronger force than internationalism. There remains a contrast between achievement and the information technology millennium. My second conclusion draws from the other contrast, between the existing research on open and distance learning and what we need to find out in order to guide policy for international education. If we want to make education more international the contrast suggests that we need to address a set of questions about access for the poor, about technology, about curriculum and the shape of our university of the future, and about governance.[33]

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[33] I am indebted to many for ideas and references that have fed into the paper and particularly to Jonathan Perraton, Peter Williams, Chris Yates and Michael Young. The faults are all my own.

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7 Technologies, education, development and costs: A third look at the educational crisis

This paper was read at a round table in Paris, called by the International Literacy Institute, which took place from 10 to 12 September 2001.[34] *Like the previous paper it explores issues of educational policy in the light of globalisation and of changes in technology but, in keeping with the theme of the round table, concentrates on basic education. Here, thirty years on, its mood is distinctly less upbeat about nonformal education than the note sounded in Paper5. The timing of the round table meant that few of us remained upbeat as it proceeded.*

In the far-off 1960s, decade of the Beatles, flower-power, and African independence, as well as the invention of distance education, and in contrast to the optimism of the decade, Philip Coombs published a book on the *World education crisis* (Coombs 1968). He revisited the theme in the 1980s although he did so before it was possible to see the full extent of the damage Reagan, Thatcher and their acolytes were doing to the south and its education (Coombs 1985). Twenty years on it is worth revisiting his analysis. Coombs warned that there was a crisis in which rising demands for education were coming up against fiscal barriers while expectations of what it could do were unachievable without changes in its ossified curriculum. While he was measured in his assessment of their potential he saw both nonformal education – a term he coined – and the use of the technologies as having some potential in helping to resolve the crisis. Coombs was prescient, right and wrong in his analysis: prescient in his assessment of the technologies, right in his identification of the crisis, probably wrong in his overall assessment of both formal and nonformal education where, in much of the world, formal education has done better and nonformal worse than he anticipated.

The purpose of this paper is to ask some of Coombs' questions again. In a new decade, does the record suggest that communication technologies can play a major role in the reform of education? It does so first by looking for evidence on the digital divide between the north and the south, in order to see what kind of questions the divide puts on the policy-maker's agenda. That comes first in the belief that any educational policy about the technologies is dependent on national policy about communications and technology. Then we can ask how, and how effectively educational technologies are being used in education today. And then we need to ask about their costs.

The digital divide

There is ample evidence of the existence of the digital divide, in which the north has much better access to new information technologies than the south. Nor is there just one divide as there are deep divides within countries; the fact that Bangalore can match silicon valley in software development does not mean you will find a cybercafe in every Indian village. But divisions between the information-rich and information-poor are important for the policy maker as they reflect:

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[34] Perraton, H. 2001 'Technologies, education, development and costs: A third look at the educational crisis', presented as the International Institute for Literacy round table *University and technology for literacy / basic education partnerships in developing countries*, Paris 10-12 September

> a new international division of labour. The division is based less on the location of natural resources, cheap and abundant labor or even capital stock and more on the capacity to create new knowledge and apply it rapidly through information processing and telecommunications to a wide range of human activities in ever-broadening space and time. *(Carnoy 1995: 212)*

While countries in the south vary in the extent to which they are benefiting from the new technologies, with the NICs, China and India, and the larger countries of Latin American looking as if they may develop strategies to their own benefit, Carnoy goes on to argue that there are also 'clear losers ... the Fourth World, comprised of marginal rural economies on all three continents and of Africa's and Latin America's sprawling urban peripheries' (ibid.: 213). Except for neoliberal free-marketeers there would seem to be a moral imperative to look for policies that might seek to bridge the divides of information that threaten to reinforce existing inequalities in wealth.

The search for policy is problematic. It is easy to make the argument that the south fails to invest in the new technologies at its peril. But, on the other hand, the OECD found that, while investment in information and communication technology equipment was a driver of labour productivity growth in the United States, 'there still appears to be little empirical evidence of important economy-wide effects linked to the widespread diffusion of these technologies' (OECD 2000 : 4). An examination of developing-country experience found that while, above a threshold, the new technologies may influence growth, there is a s hortage of empirical evidence on the point and 'the argument that the use of these technologies reduce transaction costs and this promotes the spread of markets is largely unverified' (Bedi 1999: 49). In short, the economic literature warns us against seeing investment in the new technologies as a guaranteed route to economic growth. Furthermore, there are opportunity costs in any investment. Heeks referred to some 50 major initiatives by 1998 to improve internet access in Africa, to which should be added other ICT expenditure by donors and governments and pointed out that 'there are finite amounts of money, time and attention. Investing these in ICTs means explicitly not investing them in other development areas. Yet the "ICT fetishists" have so far been unable to demonstrate how ICT-based information represents a more important resource than water, food, land, shelter, production technology, money, skills or power in the development process' (Heeks 1999: 10).

Good policy for the new technologies needs to find a way of ensuring that their development in the south is not in fact yielding more benefits to the north, in a replay of classical colonial economics. The latest Human Development Report illustrates the point by reference to the drain of software professionals from India to the United States.

> The United States will issue about 200,000 H-1B visas a year over the next three years. These visas are issued to import specific skills, primarily in the computer industry. Almost half are expected to be issued to Indian software professionals. What resource loss will this represent for India?
>
> Consider just the public spending on students graduating from India's elite institutes of technology. Operating costs per student run about $2000 a year, or about $8000 for a four-year programme. Adding in spending on fixed capital ... brings the total cost of training each student to $15,000 – $20,000. Multiply that by

> 100,000, the number of professionals expected to leave India each year for the next three years. At the high end it brings the resource loss to $2 billion a year.
>
> How might India begin to recover this loss? The simplest administrative mechanism would be to impose a flat tax – an exit tax paid by employee or the firm at the time the visa was granted. *(UNDP 2001: 92)*

The report goes on to warn against the danger that such a tax might encourage students to migrate at an earlier age, depriving Indian institutions of some of their best students, and goes on to examine other policy options through loan and tax policy that might have similar effects.

We do not need to take a view about the pros and cons of international labour migration to establish that a national communications policy needs to look at the costs as well as the benefits of investment in the new technologies and in education and training in relation to them. Only through deliberate policy, with national interests and the interests of the disadvantaged at their centre, is there any chance that the new technologies can avoid reinforcing old power structures and distributions of wealth. Whatever one's reservations about some of the bolder claims for the new technologies, they do put policies about their use and deployment, and policies about investment in them, on national and international agenda alike.

There is an extensive and growing literature on policy about the digital divide. Here there is room just to touch on some of the elements that might go into such a policy as it relates to education. Heeks emphasises the need to consider how the new technologies can be used in the interest of the poor and suggests that they 'need ICTs more to give them "voice" than to give them "hands", "brains" or "ears" and that they need community intermediaries to benefit from the them' (Heeks 1999: 11). We come back, below, to questions about the technologies and intermediaries in looking at their potential for nonformal education. Then educational policy will need to address questions about the level of investment in education about the technologies in the interest of the economy. It is possible to identify a hierarchy of economic needs here. The wealth, level of technological development, and size of the country will determine how far up the hierarchy it wants to go; small states may reach quite different decisions from large. The hierarchy has at least three levels.

> First, given the penetration of the new technologies within the economy, any state will need to ensure that there is a workforce of people who can use the technologies in their job. If there is a national shortage of labour with the skills to manage financial transactions or airline bookings for example, the economy will suffer.
>
> Next, and even in a small state, there is a strong argument for ensuring that a country is self-sufficient in people who can maintain hardware and software.
>
> Beyond that, some countries will want to develop national capacity to compete internationally either in the manufacture of computer hardware or in the development of software.

Following this type of analysis, policy makers will need to consider the relationships between education and training and determine how far education and training about computers belongs in school, or in tertiary education, or in the private sector.

Neither a bias towards the poor, nor hard thinking about how many people need to learn what about computers, is a total educational policy in relation to the digital divide. But they illustrate the need to develop such policies which will shape the use of the technologies in education.

Technologies and the curriculum

This approach suggests that workforce demands should play the leading role in determining the level of investment in education about the technologies. Perhaps it is too narrow: three different claims suggest it may be.

First, it is argued that the new technologies are so transforming our understanding of the world that they are a necessary part of the curriculum. On this argument, everyone should learn about computers and, god help them, about navigating the internet at school, and the rest. But it is remarkably easy to get the curriculum wrong. It was a professor of computer science at the UNESCO informatics conference, here in Paris in 1989,who reminded us that similar arguments a century before would have led everyone to learn the morse code. Even within a single generation we have got it wrong: just twenty years ago computer studies for my own children meant learning to program in basic. Answers to the question of how we address information technology in the curriculum, and what we cut out if it is to have a bigger place within it, are neither simple nor obvious.

Second, it may be that the new technologies can transform education. There have been some hopes of this. Costa Rica, for example, set up a programme to use computers in schools within the context of a move towards a more constructivist curriculum (Inés et al. 1998). More often the expectation is both vaguer and more dramatic: ICT 'can facilitate communication, increase access to information, provide greater access to students with special educational needs, model and simulate a range of scientific phenomena, and generally motivate students, develop problem solving capabilities and aid deeper understanding' (Selinger 2001). It is worth going back to Coombs at this point:

> In the euphoric education atmosphere that prevailed in the 1950s and much of the 1960s, unbounded enthusiasm and high hopes in many quarters greeted television, whose clamour and extraordinary capacity to combing sight and sound and deliver them instantaneously to classrooms over large areas overshadowed the earlier new media of films and radio. With the push of a button or flip of a switch – so it was claimed at one extreme – the best teachers in the nation could enter every classroom bringing with them a foreign language, vivid laboratory experiments, and a host of other things of great educational value that were well beyond the reach of the ordinary classroom.
>
> *(Coombs 1985: 126)*

And yet:

> By the end of the 1960s, the great boom in instructional television that had begun with such promise in the developed countries in the 1950s had lost its momentum and leveled off far short of earlier expectations ... In the developing countries as well, the high hopes held for instructional television had waned by the end of the mid-1970s, primarily because many practical difficulties had been encountered in applying it effectively and because costs proved to be

> higher, and results lower, than had originally been projected. ... [Evaluation showed] that few of the projects examined were living up to expectations; most were malfunctioning, some badly so – but not because television's high potentiality as an educational tool was a myth. The basic problem was the way this new technology was being used and misused. Typically, projects had been poorly planned and rushed into operation without adequate preparation. The lion's share of the budget had gone to the hardware, to the serious detriment of producing good and appropriate software. *(ibid.: 127-8)*

If the new technologies are to transform education we need both to establish that they are the most appropriate means for this purpose and that the old difficulties – about balance of expenditure between hardware and software, about teacher training, about overcoming practicalities and logistics – have been overcome this time round.

The third educational claim for the new technologies is that they will enable the south to leapfrog over the north. The thematic study on the new technologies for the Dakar conference demolished this argument convincingly.

> It is sometimes argued that developing countries have the opportunity to leapfrog the industrialised, using technologies so that they develop a stronger system of education without going through the same, slow, stages of development that have been followed in the industrialised world. … Four conditions seem to be necessary for this to happen.
>
> The first is that telecommunications should be capable of delivering the greater part of the curriculum; if they are only used for, say, a tenth of the time or the content then they do not allow for the significant reductions in expenditure on conventional education that would be necessary to make savings in unit costs. This condition may be met in higher education, where technology-based teaching has in a limited number of cases proved to be a viable and effective alternative. (The National Technological University, operating at postgraduate level in and beyond the United States, is the dominant example.) It may be met in large-scale, broadcast-based projects at junior secondary level, like Telesecundaria in Mexico, but it seems unlikely that it can be met at primary level. For both social and educational reasons, parents, teachers and politicians all expect that young children need to study, in a classroom and with a teacher, and do not believe that the technologies can provide an adequate substitute for this.
>
> The second condition is that an adequate communications infrastructure is in place. Effective radio, for example, demands that schools should be able to afford radios, have access to mains electricity or to batteries and funds to pay for them, and to a service industry that will repair and replace radios when they break. A web-based computer education service demands reliable electricity and telephone lines and, again, a support service to maintain equipment.
>
> The third condition is that there is the capacity to train teachers – or mentors or classroom assistants if they are to substitute for teachers. Several different elements make up this capacity: a teaching force whose background education is adequate for them to learn and apply new teaching skills; enough time for them to study on top of their day job of teaching; a national or local structure to provide inservice teaching even for the most remote teacher.

> The fourth condition is economic. If technology-based teaching is to yield any economies, then the cost per learning hour achieved through the use of technology must fall below that of conventional education. Data from France and USA suggest that computer-based teaching there has costs of between US$1 and $2 per student hour, which would compare favourably with the cost per hour of conventional teaching which is in the range $4 to $12 (Orivel 2000). But a large proportion of the costs for computer-based teaching are a function of the costs of the technology. These costs are likely to be as high in developing as in industrialised countries, or even higher. In contrast conventional costs per student reflect local wage rates for teachers and may be as low as $0.10 per hour within ldcs, a fraction of the cost to be expected for technology-based teaching. Orivel has suggested that it is only when countries are achieving a GNP per capita of $7300 that they may reach a breakeven point in which computer-based costs match those of conventional education. Even here, if technology is to produce savings, it must substitute for teachers. For most ldcs technology can only increase the cost of basic schooling, not reduce it. *(Perraton and Creed 2000: 83-4)*

The evidence suggests, then, that the new technologies need to justify their position in the curriculum, that they are not a magic wand to transform education, and that they will not enable poor educational systems to leapfrog over rich. With unrealistic expectations out of the way we can go on and ask the more serious questions about what role they can usefully play in education.

Technologies for education

How far do technologies have a role in helping provide education as contrasted with their role within the curriculum, as an element in its content or a driver of reform. A range of technologies have been used at all levels of education. They have been used within school, to raise quality or broaden the curriculum, to create an alternative kind of school, and outside school.

At primary and secondary level broadcasts have been used within school, using various different approaches from providing enrichment to direct teaching including interactive radio instruction. Computers have been used for two decades and much attention has recently been given to their use for school linking and for access to the internet. Computer-based teaching may be blurring the distinction between work on and off-campus when the same program is available to both groups of students.

In a handful of cases technology has been used to create an alternative system of schooling. There is little documented success in reaching out-of-school primary children or adults following a similar curriculum. The great success story here was Acción Cultural Popular in Colombia, with between 100,000 and 200,000 students annually in the 1970s. But its work fell away, hampered by the severity of the depression in Latin America in the 1980s and eventually falling foul of both church and state (Fraser and Restrepo-Estrada 1998). In Mexico, Telesecundaria offers television-based secondary education to rural students, originally using monitors to support the work taught by broadcast. Open schools in Asia are attempting to reach similar audiences, as are new programmes in Africa of agencies like the Botswana College of Distance and Open Learning, the sonorous BOCODOL. At tertiary level, open and dual-mode universities have used communication technologies, from print to broadcasts to computer-linked

technologies, in order to teach off-campus audiences and may-perhaps, be regarded as a kind of alternative college.

Technologies have also been used for off-campus teaching, often to individual students as contrasted with the classes gathered together for Telesecundaria. Here the success stories belong to the open universities, which have attained a measure of credibility, and in teacher education where distance-teaching programmes have a reasonable record of success.

This experience is summarised in table 7.1 but reviewed more extensively in Perraton (2000). Much of the record is dominated by quite simple technologies; open universities, for example, still use print to teach their students more than they use computers. The record also suggests that the successful development of technology-based teaching demands, for most audiences, a co ncern for the social support to students. The lower the educational level, the more important this support becomes. Primary education at a distance does not seem to work as primary-age children need the support of a school to help them learn and the social experience of attending one. At secondary level, Telesecundaria works because it provides a s tructure within which children can learn from television. For teacher training, the more successful programmes have been those that integrated student support and classroom practice while others disappointed because logistical problems cut this back. At tertiary level, we remain short of outcome data, and of information about the factors that influence this – the theme of a research study currently in progress at IRFOL.

The changing record on nonformal education needs a further look. At the time of Coombs' first book, it was possible to look at a range of projects that used educational technology to offer out-of-school education in areas like health, agriculture, family planning and rural development as well as for formal qualifications (cf. Coombs, Prosser and Ahmed 1973, Coombs with Ahmed 1974, Ahmed and Coombs 1975, Young et al. 1980).[35] Typically they combined broadcast or print support with group study; the experience included radio schools in Latin America, mass-media educational campaigns in Botswana, Tanzania and Zambia, farm forums in India and Africa, and attempts to link group learning with support for rural farmers by the multi-country African Institute for Economic and Social Development, INADES-Formation, in fourteen African countries. This approach rested on well-tried theories of communication and, in particular, on the two-step or multi-step theory of communication, arguing that we learn from the mass media most effectively if we have an opportunity to discuss mediated analysis and suggestions with peers within our own community (cf. Rogers with Shoemaker 1971). Much of this work has fallen away; radio farm forums generally stopped meeting; radio campaigns seem no longer to exist; INADES-Formation did not find a general formula for agricultural group study. Thus, while models have been developed and tested on a trial basis, 'with only rare exceptions, structures that link the use of mass media with face-to-face learning have not proved sustainable' (Perraton 2000: 30).

But there are attempts, with quite different starting points to use some of the newer technologies for development and for making information available to support development. They include, for example, the experimental development of cybercafes,

[35] See also Papers 1, 2 and 5 above.

Table 7.1: Types of educational activity using technology

Educational level	*In-school*	*Alternative school*	*Out-of-school*
Primary	Broadcasting (e.g. school broadcasting, Interactive radio instruction) Some use of computers in rich countries	Few successful examples since the collapse of ACPO	
Secondary	Broadcasting Increasing use of computers	Open schools (Asia) Telesecundaria (Mexico) Study centres (central Africa)	Enrolment of secondary-level students on distance-courses
Tertiary	Growing use of web-based material	Print, broadcast and web-based teaching for off-campus work by open and dual mode universities	Increasing public access to web-based material
Teacher education	Some use of computers e.g. for college linking		Extensive experience of using distance education for inservice teacher education
Nonformal education			Some exemplary projects, many of them based on low levels of technology Modest use of technologies to support extension agents

the use of community radio, and the promotion of cell phones by the Grameen bank in Bangladesh: using computer technologies, radio, and telephones to support rural development. The experience is reviewed in, for example, O'Farrell 1999 a nd Rose 1999. It may be that the future of nonformal education belongs in the cybercafe rather than the university class.

We are short of evaluative data on these newer developments: one conclusion from them is the need for continuing experiment and good evaluation. But it is possible to reach some preliminary conclusions. The reported experience is mainly from communication-led, rather than education-led activity. Much of it is about one-way transmission of information, or two-way point-to-point communication and not about the two-step flow of the earlier work. Then, old problems of communication-based education have been resurfacing. Early

evaluation data of the Canadian-backed Acacia project, experimenting with multipurpose community telecentres, suggested that solving the technical problems of the last mile of interconnection, of mobilising public support, and of generating an adequate revenue were all important (Rose 1999). Cost remains a constraint; the Grameen bank's supply of cellular phones has been widely acclaimed, but its extension to the whole of Bangladesh would require some $80 billion investment (Hans d'Orville quoted in O'Farrell 1999: 13). Improved external communication can, of course, benefit the rural and remote; providing better market information may be a potent force for change. But internationally available information will not meet every need; a project in Uganda, for example, documented the demand for local-language material (O'Farrell 1999: 8). There is a tension here between locality and economy, to which we return in looking at the costs of the technologies.

This experience is mainly about the use of the technologies for individual citizens and learners. It is, too, essentially about distributing information from the centre to the periphery not about, for example, using the capacity of the technologies to store and use indigenous knowledge in agriculture or health. A different approach has been to use the new technologies to strengthen the work of intermediaries – health and agricultural extension workers for example. Here there are a few beginnings with attempts to make information services like AGRICOLA available more widely and the pilot use of telecentres to overcome the isolation of extension agents (cf. Perraton and Creed 2000: 63-5). But the thin evidence available suggests that there are only scattered developments of this kind. World Bank websites, for example, say much more about the technologies for education than about technologies for extension.

These scattered experiments are important. There are large cadres of extension workers and teachers at work, often isolated, and the new technologies have a p otential for increasing their effectiveness. In exploring that potential it makes sense to use the route maps drawn during the last phase of technological euphoria

The costs

In examining the comparative costs of technology-based and conventional education we can look both at the determinants of the costs and at the actual costs achieved. And the costs will tell us only part of the story: of the six possible outcomes from their expanded use, economics will give us a guide to policy in only four cases; if we have poorer outcomes for less expenditure or better outcomes for more expenditure (3 and 6) then economics will not tell us what to do

1. Costs the same but improvement in quality or equity or more students reached
2. Cost reduced but results as good or better
3. Costs reduced but results worse
4. Costs the same but results worse
5. Costs increased but results the same or worse
6. Costs increased but results better

Teacher salaries dominate educational budgets. Where nonconventional approaches to education, such as open and distance learning, show unit costs lower than for conventional, they have usually done so by substituting capital for labour, or by employing cheaper labour with tutorial assistants replacing teachers. Capital investment in the production of teaching

materials has made it possible for a smaller number of teachers to teach a larger number of students. Off-campus, distance-education, programmes can, under some circumstances, have significantly lower costs per student than conventional programmes. Less often and with more difficulty they may achieve lower costs per successful student.

Often, however, it is not appropriate or acceptable to use technology as a substitute for a teacher. Computers cannot look after a class of primary-school children. Where technologies are used within schools or colleges we may therefore expect them to increase unit costs. As already noted, from Orivel's analysis, even if technology is used to replace teachers, there may be no economies because of the relative cost of the new technologies and of teachers.

In looking at the comparative costs of different educational methods we can look at the costs of individual technologies and at the comparative costs of whole programmes that use them.

Computer-based technologies may be used for new styles of teaching, to distribute teaching material to students, or to allow interaction between tutors and students. Where they are simply used as a means of distribution they may, in principle, do nothing to the total costs, although they are likely to redistribute costs from the institution to the learner. But where teaching materials are produced for computer-based learning, or they are used for interaction between tutor and student, then they have profound effects on the costs of teaching. For not only does it cost more to produce material in computer-based formats than in print but the accessibility made possible through computer links mean that the cost of tutorial support to students is also likely to rise.

In a study of the cost effectiveness of a range of technologies in education within the European Union, my own organisation looked at the comparative costs of different technologies. Arguing that teaching usually starts with a text, Hülsmann took as his starting point the cost of preparing teaching material in print and then looked at the effect on the cost of moving to a different medium. From eleven case studies in Europe, and in line with earlier researchers, he found that the costs of producing teaching material, in various formats, varied as in table 7.2.

The table shows relatively high costs for broadcasting, with television far exceeding the costs of radio. But, typically, broadcasting has been used in education for large audiences where the costs are spread over such a large number of learners that the unit cost is modest. Television is, for example, appropriately used for teacher education in China. The figure for developing material on cd-rom is more disturbing if we are considering its widespread use as, so far, computer-based projects have not been addressed to audiences on this kind of scale. (In a recent study Rumble has found costs escalating in the same way as more and more sophisticated uses were made of computer audiences technologies. Arizona Learning Systems showed a co st for a t ext-based course rising from $12,000 for text to $120,000 with audio and video and $1,000,000 for virtual reality (Rumble 2004). The consequence of these costs is that developers will seek to maximise their audience, with interesting consequences for academic institutions seeking to develop their own materials in competition. While this may be possible for accountancy – and even there American, Canadian and European practice varies – it is more difficult in basic or nonformal education. The Ugandan search for materials in the local language does not fit with the need to maximise audiences in the interest of sophisticated production.

Table 7.2: **Cost of preparing unit of teaching material**

Currency: 1998££ sterling

Medium	*Cost per student learning hour*	*Ratio to print costs*
Print	500	1
Radio	15,000 to 27,000	x 30 to x 50
Television	90,000 to 125,000	x 180 to x 250
Videoconferencing	18,000 to 84,000	x 36 to x 170
cd-rom	20,000	x 40

Source: Perraton and Hülsmann 1998, Hülsmann 2000

The evidence from an examination of individual technologies suggests the need to make a strong educational case as you move up the level of sophistication and costs increase. It is much easier to justify the costs of the more advanced technologies when there is a potential multiplier effect. While, in many jurisdictions, it is difficult to find an educational justification for heavy expenditure on the technologies in school, it is much easier to see a role for them in the education and continuing professional development of teachers or of extension agents.

Turning to broad comparisons between distance-education and conventional systems, where we have a fair amount of evidence, conclusions from it are mixed.

> Basic education for adults, on a large scale and in a poor country, may be possible only by using mass media linked with some kind of student support, perhaps provided by unpaid volunteers. Even so its costs tend to be higher than those of primary schools and it is difficult to see how governments could afford to expand it to reach large, national audiences. Distance education has particular strengths where it is used to support extension agents so that a multiplier effect comes into play. Education out of school, whether for adults or through alternative secondary schools, has lower costs than conventional education and would probably not exist unless it did so. In many cases its modest costs are matched by modest success; poor completion and pass rates mean that its costs per successful student tend to compare much less favourably with conventional alternatives. Teacher education, again, has a potential multiplier effect and high motivation levels, for teachers expecting promotion, has brought high success rates with competitive costs per graduate. In higher education, so far as we can tell, there are many examples of costs per student being kept quite modest while costs per graduate may rise to equal or exceed those of the conventional sector. *(Perraton 2000: 138)*

To reiterate, the cost data support a bias towards technological simplicity, a search for multiplier effects by using the technologies to help teachers and extension agents, and an exploration of their role in tertiary education where problems are stark and comparative costs already high.

Conclusions

Progress in addressing the world educational crisis has, despite all the setbacks, often been faster than could have been foreseen some thirty years ago; education has expanded dramatically; the gender gap is narrowing; even the 2015 targets look as if they might very widely be attained. Much of this, perhaps surprisingly, and against the forecasts, has been achieved mainly because of the work of ministries of education and teachers, pursuing a conventional agenda. Nonformal education, seen as a poor relation in the 1960s, remains the poor relation today. 'Furthermore the meager resources actually allocated to nonformal education are too often wasted for lack of a clear strategy, good planning, firm priorities, and workable administrative arrangements' (Coombs 1968: 144). Then and now. But this is not to dismiss the role of nonformal and out of school education and of the information and communication technologies in education. The evidence suggests that five conclusions can be drawn about their significance for the crisis today.

First, the case for investment in the technologies within the economy is not clearcut and, by extension, determining the appropriate level and location of investment in education about and through them is neither clearcut nor simple. The development of national policies for information and communication technology, and for educational policies within them, is both necessary and difficult.

Second, poor countries are not going to leapfrog the educational development of the rich.

Third, as we are still struggling to find appropriate ways of using the technologies, and especially computer-based technologies, it is right to experiment with their use. But these experiments will have a chance of success only if they take account of the old lessons – about learning and logistics, pedagogy and practicality – demonstrated long ago but still applicable in cyberspace. The tough questions here are still about linking what can be mechanised, even made universally available, and what needs to be done locally and face-to-face. If we have a bias towards the interests of the poor, in a new round of exploration we will look at attempts to build on indigenous knowledge, or empower and strengthen remote teachers and extension agents, ahead of proposals that enrich already privileged schools. Basic computers in teachers' colleges or extension offices, and their proper use, look more important than cyber links between capital-city schools.

Fourth, those experiments will be worthwhile if there is honest evaluation. In reviewing the evidence on the technologies for DfID and UNESCO we found a sad dearth of good research that would tell us about outcomes and costs as well as hopes and methods. Nor is this just a problem of the developing world; in their review of research on computers in schools, Kulik and Kulik (1991), for example, commented on the near-total lack of studies of cost effectiveness.

Fifth, we need to be attentive to the costs. Out-of-school education, that does not demand school buildings or classroom teachers on fixed staffing ratios, sometimes shows economies as compared with conventional education, but does not always do so. Advanced information and communication technologies can eat up budgets. The educational case for their use needs to be tested and demonstrated ahead of investment.

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8 Well-trodden routes and mountains still to climb

This paper was presented as the keynote for the meeting of the Distance Education Association of Southern Africa in September 2004 with its theme of 'Breaking the barriers to educational achievement'.[36] *It explores some general themes about the changing role of open and distance learning and revisits issues about education in southern Africa touched on in Papers 1, 2 and 5. Despite, even in contrast with, the dramatic advances in formal education within the region, there were still mountains to be climbed by distance-education practitioners. The paper re-emphasises the importance of research and, drawing from it, explores conditions for success and recommendations for practice.*

I begin with thanks to the Association for inviting me back to Lesotho and to the Commonwealth of Learning for making it possible for me to get here. It is a particular pleasure, not just to be with the people and among the mountains of Lesotho, but also because it is a return visit. I was here, for example, almost exactly thirty years ago when the Botswana Lesotho and Swaziland Correspondence Committee (BLSCC) held a workshop in Mafeteng, on Saturday 14 and Sunday 15 September 1974. I'd like to be able to talk about the lessons of that workshop, and their relevance today. Unfortunately, while I vividly remember the social parts of the programme, I don't remember its content. But it does provide an excuse for contrasting 1974 a nd 2004, seeing where we have got to in overcoming barriers, and looking at similarities and differences.

Thirty years march

Some of the differences are dramatic. We'd driven across apartheid South Africa to get here. Strictly speaking, BLSCC had members from the three countries although in practice and with delicate good sense the governments of the three turned a blind eye to the fact that delegates from Turret College and SACHED, or those who were not banned at the time, also came to the meetings.[37] They were the exception: UNISA would not have been welcome and participation from Namibia would have been inconceivable. Practicalities would have made it difficult for the other countries in the subregion to have joined us. The three countries were less than ten years old, exploring their independence, and doing so in a mood of optimism. AIDS was not yet identified. And, economically and educationally, we were looking forward to a future of expansion. We did not realise that the disastrous 1980s were round the corner when per capita spending on education in subsaharan Africa was to fall from $41 per head in 1980 to $26 in 1985 and then $25 in 1990 (Tikly 2003: 545). As everyone in this room knows better than me, and with the important exception of Botswana, the last thirty years have mixed political advance with economic retreat.

The figures on wealth (table 8.1) and on education (table 8.2) tell the story. Again with the exception of Botswana, the countries who were represented here in 1974 have, at

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[36] Perraton, H. (2004) 'Well trodden routes and mountains still to climb' Keynote speech for Distance Education Association of Southern Africa *Biennial meeting; Open and distance learning Breaking the barriers to educational achievement,* Maseru, Lesotho 18-19 September

[37] SACHED (South African Committee for Higher Education) operated within South Africa, but against the regime, during the apartheid years and ran Turret College which provided correspondence education.

first sight, grown slightly richer over the years. But these raw figures of growth in gnp per capita are misleading in two ways – first because they leave out of account inflation and because, taken alone, they leave aside what has happened in the rest of the world. When we compare Lesotho's wealth with that of the United States we can see a different story. In 1980 the economy of Lesotho had $3.5 for every $100 available to the US; by 2000 this had fallen to $1.7. If some of the barriers to education look as high in 2004 as they did in 1974, the economic reasons for this are very clear. Much of the subregion has been getting relatively poorer.

Table 8.1: Changes in wealth in five countries

	gnp per capita in current US$			
	1980		*2000*	
	value	*% of US*	*value*	*% of US*
Botswana	790	6.6	3,300	9.7
Lesotho	420	3.5	580	1.7
Swaziland	800	6.7	1,390	4.1
Namibia	n/a	n/a	2,030	6.0
South Africa	2,160	18.0	3,020	8.9
USA	12,010	100	34,100	100

Source: World Tables; UNESCO EFA Global Monitoring Report

Table 8.2: Enrolment ratios in five countries

	Primary		*Secondary*		*Tertiary*	
	1980	*2000*	*1980*	*2000*	*1980*	*2000*
Botswana						
gross enrolment ratio	91	108	19	79	1.1	4.6
net enrolment ratio	75	84	15	59		
Lesotho						
gross enrolment ratio	102	115	17	33	n/a	2.6
net enrolment ratio	n/a	78	n/a	21		
Swaziland						
gross enrolment ratio	106	125	39	60	3.9	5.2
net enrolment ratio	83	93	n/a	44		
Namibia						
gross enrolment ratio	n/a	112	n/a	62	n/a	5.9
net enrolment ratio	n/a	82	n/a	38		
South Africa						
gross enrolment ratio	n/a	111	n/a	87	n/a	15.2
net enrolment ratio	n/a	89	n/a	63		

Source: UNESCO Statistical Yearbook 1985; EFA Global Monitoring Report 2003/4

Despite this, the educational figures in these same countries tell a slightly more encouraging story. Of course we are handicapped by the lack of earlier figures for Namibia and South Africa, but, at secondary and tertiary level, there is a consistent pattern of growth, against the odds. There is more to do and I will come back to that.

I do recall that, at the 1974 meeting, we had people from three continents (Africa, Asia and Europe) and I want to range internationally in looking at the achievements of distance education over thirty years in scaling the barriers. I see three major changes. First it has got a new legitimacy, and done so in several different sectors of education. Four months after that meeting I went to spend some time working with Alhaji Hafiz Wali on his plans for the National Teachers' Institute in Nigeria, now an established part of the education service there, enrolling over 8000 trainee teachers a year. In Asia, open universities are now typically taking between 10 and 20 per cent of the enrolments to higher education. In conservative Britain, most universities now offer some distance-learning courses, often at postgraduate level. In Asia again, open schools are beginning to create a new model of out-of-school education as BOCODOL and Namcol are doing here.[38]

Second, through all this work, distance education has built up a body of expertise, which is in the minds of its practitioners and recorded in the increasing volume of guides, manuals, and analytical literature. We are not short of guidance on how to do it. One consequence of this increased expertise is that good distance education achieves results: there is well-documented evidence, to take just one sector as an example, of its effectiveness in training teachers in many parts of the world (Perraton 2000, Robinson and Latchem 2003).

Third, we have got much further in international sharing and cooperation. DEASA, in its various incarnations, led the way and its experience was noted when plans were being developed for the Commonwealth of Learning (Briggs et al. 1986: 45). For its part the Commonwealth of Learning, and its counterpart CIFFAD in the francophone world, have provided structures and mechanisms for us all to exchange ideas, experience, information and resources.

If there are still mountainous barriers to climb, we have a legitimate standing in the world of education from which to do so, no shortage of techniques, and collaborative structures to help us. At the same time, the barriers are still there and our record of achievement more patchy than we would like.

Educational needs

The Nobel prize winner Armatya Sen, in writing *Development as freedom*, emphasises human capability which focuses 'on the ability – the substantive freedom – of people to lead the lives they have reason to value and to enhance the real choices they have' (Sen 1999: 293). He goes on to argue:

> If education makes a person more efficient in commodity production, then this is clearly an enhancement of human capital. This can add to the value of production in the economy and also to the income of the person who has been

[38] BOCODOL is the Botswana College of Open and Distance Learning, originally established as the Botswana Extension College (see Paper 5 above); Namcol is the Namibia College of Open Learning.

> educated. But even with the same level of income, a person may benefit from education – in reading, communicating, arguing, in being able to choose in a more informed way, in being taken more seriously by others and so on. The benefits of education, thus, exceed its role as human capital in commodity production. The broader human-capability perspective would note – and value – these additional roles as well. *(ibid.: 293-4)*

Sen's view of education, as a necessary condition for the freedom which he sees as the end as well as the principal means of development, contrasts with much recent economic argument about investment in education, although it does not conflict with it. In looking at tertiary education, for example, the World Bank argues remorselessly:

> Social and economic progress is achieved principally through the advancement and application of knowledge.
>
> Tertiary education is necessary for the creation, dissemination and application of knowledge and for building technical and professional capacity.
>
> Developing and transition countries are at risk of being further marginalised in a highly competitive world economy. *(World Bank 2002: 6)*

In stressing the need for developing countries to increase their capacity to use knowledge they quote the examples of the Mozambique floods in December 2000 when, although meteorologists had warned of the danger six months before, 'there was no in-country capacity to analyse the scientific data, draw concrete conclusions, and recommend preventive measures that would have saved thousands of lives' (ibid.: 13). (Political will and good governance are also needed in an effective knowledge society: the British colony of Montserrat had similar warnings of the dangers of the volcano which was to erupt in 1995 when they rebuilt government headquarters in its path.) But it is difficult to achieve the kind of learning society for which the World Bank, with others, has been arguing if half of the children still do not get to secondary school and not much more than one in twenty go on to tertiary education.

There is a consensus, from those concerned with education for freedom to those concerned with education for economic development, of the need to overcome the barriers to expanding and strengthening education. At the same time, the familiar reality identified by NEPAD is that:

> In Africa, 340 million people, or half the population live on less than US$1 per day. The mortality rate of children under 5 years of age is 140 per thousand and the expectation of life at birth is only 54 years. Only 58% of the population has access to clean water. The rate of illiteracy for people under 15 is 41%. There are only 18 mainline telephones per 1000 people in Africa, compared with 146 for the world as a whole and 567 for high income countries.
>
> *(quoted in Tikly 2003: 145)*

This takes us to the crux of the argument. Given the demand for education, given the ethical and economic arguments for investment in education, given the scale of Africa's social and economic problems to which it is relevant, and given the advances in distance education over the last thirty years, why are the barriers we are facing today so like those we contemplated three decades back? Are the barriers there because of the scale

of the African problems identified by NEPAD or because of the way distance education has itself developed over this period?

What is wrong with distance education?

Looking again at international experience, and despite the evidence of its legitimacy and effectiveness, distance education's own record is patchy. Three examples: I've recently read two papers, from different continents, in which there are accounts of open-university students waiting months for their assignments to be marked and turned round. In India, research carried out by Indira Gandhi National Open University and by my colleague Reehana Raza at the International Research Foundation for Open Learning have found successful completion rates of less than 5 per cent in some degree courses (Raza 2004). Perhaps even worse, she cites a legal judgment in Pakistan which upheld the right of a state government not to recognise a teaching qualification from the Allama Iqbal Open University. Of course these need to be set aside the success stories: much teacher training, recent educational programmes in Kenya, more than ten years of successful international teaching at master's level by Wye College in Britain, and much more. But the record is undoubtedly more gloomy than we would have expected in 1974 and it is difficult to avoid the conclusion which Hornik drew in relation to mass-communication programmes for nonformal education: these had failed principally because, though we know how to run them successfully, we do not in practice do so (Hornik 1988: 158). We know, for example, that there are advantages in combining media, such as print, broadcasting and face-to-face support, but we often fall back on just one of them; we know that materials should be pre-tested, but they seldom are; we know that rapid and helpful feedback motivates and helps students, but for practical reasons often fail to provide it.

What is to be done? I have three suggestions.

The first is to look not only at good practice in distance education but also, from its record, to identify the preconditions for success. While these will differ in detail, in particular for different levels of education, they often lead us into examining the policy framework, funding, issues about the technologies, issues of parity of esteem, and questions of organisation, as set out in table 8.3.

Beginning with policy, I suggest that we need to look at proposals for using distance education within the framework of educational policy generally. Distance education for teachers, for example, will be only a peripheral activity if it is outside the regular policy framework for teacher education. The creation of an alternative system of secondary education, or the development of an open-university approach, raises general issues of educational policy. Some technology applications require a place within national communication policy as well as educational policy.

Next, funding. Funds are always needed but there are differences between the funding of distance-education programmes and of conventional education. Funding for maintenance, in its broadest sense, is a dominant theme; it is needed to pay for the costs of maintaining and updating teaching material, for example, and in the longer run for the increased salary costs of teachers upgraded through a distance-education programme. If cybercafes or telecentres are to be used as the base for nonformal education they need to identify a regular income stream in order to survive. From a

Table 8.3: Some conditions for success

Activity	*Preconditions*				
	Policy framework	*Funding*	*Technology*	*Parity of esteem*	*Organisation*
Out-of-school alternative secondary education	Needs government or ngo long-term commitment	Funding system needed that will not keep out most disadvantaged	Technology needs to be accessible to learners		Support of students presents major organisational challenges
Distance education for teachers	Part of policy on teacher education	Decisions on location of costs Consider budgetary implications of raising teacher qualifications	Needs to follow not lead development of technology for other purposes Choice of technology then likely to be dependent on scale of activity	Qualifications need to be on par with those offered by conventional institutions	Requires integration with conventional system Requires distance-education provider
Distance education in higher education	Major policy issues about status and relationships with conventional institutions	Funding system required that will be sustainable but allow quality teaching			Sound decisions needed about location within an existing institution or use/creation of free-standing open university
Nonformal education	Within context of national ict as well as educational policy	Adequate income stream needs to be identified	May be dependent on electricity and tele-communications	Not relevant	Critical issues are about ways of supporting students and enabling interaction between them
Interactive radio instruction	Needs place within national educational policies and strategies	Funding challenge as costs are additional to those of system	Dependence on availability of radio and either batteries or mains	Not relevant	Organisation of support for teachers the major challenge

different angle, the capacity of the technologies to reach new audiences may provide an opportunity to seek new funds: teachers following inservice programmes have, in some cases, been asked to meet a proportion of the costs while the open schools in India have been under pressure from government to become self-supporting. Considerations of funding thus take us rapidly into questions about equity and access. One condition of

success is therefore to reconcile pressures for economic sustainability with pressures to ensure access especially for disadvantaged learners.

There are always preconditions for success in terms of the technologies themselves. Educational programmes are at risk if they are riding ahead of the use of technology for commerce and entertainment. Questions about access to the technology are important, and often include within them questions about access in relation to gender, while there are often preconditions in terms of the availability of factors such as electricity supply, cheap working telephones, or television channels.

Where the technologies are being used for extending education to new audiences, or for education out of school or college, learners suffer unless their programmes or qualifications have parity of esteem with conventional equivalents. Teachers trained at a distance want qualifications that match those offered in-college; out-of-school programmes for young people are under pressure to match conventional awards and curricula even if there is a case for a nonconventional curriculum, more closely matched to student needs.

Finally, there are always preconditions in terms of organisation: we need something that will get the logistics right and meet the needs of our scattered students. Many of the issues here are not just about internal organisation: aside from funding, the difficult problems in using the technologies are more about human support, about learners and teachers, than about the technologies.

My first suggestion therefore is to examine carefully what the evidence tells us about the preconditions for success in what we are trying to do.

Then, second, let us ask tough questions about where distance education is and is not working and make evidence-based choices. (Perhaps we have been our own worst enemies here in arguing that the flexibility of distance education means that it can be applied to all educational problems.) Basic education provides an example. Charlotte Creed and I were commissioned by UNESCO to look at the use of new technologies for basic education in the run-up to the Dakar conference of 2000. Our blunt conclusion was that: 'there is no alternative to primary school. Technology-based alternatives have not thrived' (Perraton and Creed 2001: 48). We did in contrast find that there was extensive and successful experience of using distance-education and technology-based approaches to support primary schools through, for example, inservice teacher training and interactive radio. At secondary level, or for secondary equivalence, the earlier record in central Africa was of extremely modest success. We need to monitor the work of BOCODOL and Namcol, and look at the development of open schools in Asia, and perhaps the huge Mexican and Brazilian programmes at this level to see if we can find a workable model. At tertiary level, the evidence is consistent in showing that distance education can attract large numbers of enrolments. Open universities in the industrialised world have been achieving successful completion rates of 50 per cent or more. But recent work shows that even the well-established Asian open universities are getting disappointingly low graduation rates for first degrees, but significantly higher rates for certificate courses and for postgraduate qualifications (Raza 2004). Perhaps we need to rethink the open-university model for first degrees.

My second suggestion, then, is the researcher's one of looking hard at success and failure, of using distance education where it makes sense, but recognising that it is not always the best way of achieving our educational ends.

Third, work done by Palitha Edirisingha in an analysis of programmes of basic education may suggest a way forward. He distinguished three sets of factors that bore on success and failure (Edirisingha 1999). Four of these factors are related to the context of the programme, and four to the programme itself. The other four are related to both the context and the programme. This model is set out in table 8.4.

Table 8.4: Factors affecting educational effectiveness and sustainability

Context-related (external factors)	*Intermediate factors (both context- and programme-related)*	*Programme-related (internal factors)*
Political context and political support	Funding regime	Instructional design
Integration into the mainstream education	Cost of the programme	Selection of media or technologies
Independence of the organisational structure	Relevance of the curriculum	Quality of the learner support system
Access to communication infrastructure	Existing structures and collaboration	Capacity of in-house research

His work suggests that four external factors have a major effect on the working practices, and on success and failure, of distance education. All educational projects or programmes depend upon the political context and adequate political support. The context here may not just be the government; in Latin America, for example, organisations linked with the Roman Catholic church have been in a position to work effectively in basic and adult education. Then, in most cases, in order to meet the demands of students, programmes need to be integrated with mainstream education. Many students want to move from non-conventional to conventional education, and seek qualifications that are accepted within the formal system. There is a complication here: Edirisingha found that effective distance-teaching systems needed a measure of autonomy from their parent institutions: conventional structures seldom fit well with the needs of out-of-school students and non-conventional institutions. Thus managers face the paradoxical demand that they should be close enough to ministries of education to ensure their teaching is recognised on a par with the conventional while far enough away to enjoy a measure of autonomy needed for effectiveness. The fourth external factor concerns communications: without access to a communications infrastructure, any institution will be able to use only a narrow range of teaching media.

Edirisingha went on to identify four intermediate factors where a distance-teaching institution is likely to share its authority with others, such as a parent ministry. These include the funding regime and, closely associated, the cost of the programme. Decisions about the curriculum are likely to be influenced by external agencies, including examining bodies, and by the demand from students, their parents, and the labour market although many decisions about just what should be taught will rest with

the individual teaching institution. Organisational structures, and the possibilities of cooperation among agencies, are also likely to respond to the interplay of internal and external factors.

Four factors are more narrowly programme-related and often within the control of the managers of a distance-teaching institution. These concern instructional design, the selection of media or technology, the quality of a student support system, and the quality of in-house research. The first three are the staples of good practice in open and distance learning. The fourth leads to the suggestion that, if practice is to be strengthened, it needs to rest on the foundations of a continuing programme of formative evaluation.

Most discussion in distance-education workshops, and indeed in its literature, concentrates on the right hand side of table 8.4, the factors most readily within the control of the institution. Indeed, I previously suggested that one of the reasons for our patchy record of success was that we had, too often, failed to put into practice what we already know about student support, instructional design, and the choice of media. But the real point of the analysis is to suggest that we might, with advantage, concentrate more attention on the centre and the left hand side of the table.

I'd like to illustrate the point by looking at just two areas, which were already highlighted in looking at conditions for success: the funding regime and issues about the integration of distance education with the rest of the education service.

Funding first: about three years ago, with colleagues and on behalf of UNESCO, I looked at ten distance-education programmes for teachers. Along with encouraging findings about effectiveness, which we had expected, we found much more to our surprise a diverse and varied pattern of funding with finance for the programmes coming from government, from student fees, from the community, from the private and nongovernment sector and from funding agencies. Although we had expected government funding to dominate, we found only one programme (in Britain) where government met all the costs; all the others had funding from more than one source (Perraton, Robinson and Creed 2001: 36-7).[39] This is not an argument for switching from financial dependence on government to dependence on student fees, with all the consequences for access and quality that it would have. It is, on the other hand, an argument for discussing within distance education and with policy makers about the funding arrangements that may be possible and appropriate both for distance education and for conventional education. And there is merit in considering those issues together, confronting, for example, the difficult, and politically sensitive issues about the funding of full and of part-time students

Funding leads us naturally to integration. The success story here comes from Australia which has moved on from talking about distance education, or open learning, to flexible learning. There are now effectively no barriers between doing some of a degree programme full-time on-campus, or part-time on campus, or off-campus through distance-learning methods. Of course technological changes have helped: where students are following a web-based course it does not much matter where they are

[39] See also Perraton, Robinson and Creed 2007 where the case studies are published in full.

studying. But acceptance of the principle of flexible learning, so that different modes of study are integrated into a single programme, makes it easier to assume that students can, or even should, spend some of their time on campus and some of it off. The relevant African story here is from the University of Mauritius where 'first-year students are taught at a distance and move to residential status only after successful completion of the first year of study' (Saint 1999: 19). This looks immediately attractive as a policy option, in helping the university expansion needed if we are to become knowledge societies, in developing what may be an effective and viable form of flexible study, and in addressing equity between those on-campus and off. But the more general point is that it demands attention to the integration between distance and conventional education, for policy initiatives that are on the left-hand side of table 8.4, and for stronger dialogue between distance and conventional education.

Kwame Nkrumah urged, 'Seek ye first the political kingdom'. My third suggestion is that distance educators need to think about policy and keep close to policy makers as well as designing technically sound programmes.

Conclusion

I have not done enough in this paper to applaud the achievements in the subregion over the last thirty years: you need someone else to sing the praise poem. At the same time I have tried not to be over-critical. If I have a disappointment it is that the ideas of distance education for rural development, high on the agenda at Botswana Extension College and Lesotho Distance Teaching Centre thirty years ago, have not borne the fruits we hoped for. But, while we experimented, we never properly knew how to do it.

What I have tried to do is to recognise the economic and educational difficulties from which you are setting out as you face the barriers to better education. In suggesting that we should apply what we already know about good practice, should think about conditions for success, should recognise what we do well and badly, and address issues of policy as well as implementation, I am acutely aware of how easy it is to say this on a flying visit, how much more difficult in practice.

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PART THREE:
EVIDENCE AND METHODOLOGY

Overview

This part moves from theory and context to practice. It does so in an attempt to draw guidance on methodology from the evidence on successful practice in open and distance learning, and therefore puts together papers on methodology and on evidence.

The first paper on techniques for distance education, like Paper 1 in part one, draws from the experience of the National and International Extension Colleges as they were inventing open and distance learning. It formed the first part of a guide on writing correspondence courses.[40] Its starting point is the theory of media equivalence, referred to in Paper 3, which leads first to the finding that there is often a choice between various media for any one educational purpose, and second that there are good arguments for using a variety of media in combination. On the basis of what was already known in the 1970s it then looks at the particular strengths of print, of radio and television, and of face-to-face meetings.

Paper 10 returns to the same theme but is able to draw on a further thirty years experience. Its concern is with policy at a national level, rather than that of a course developer, and it explores how a national policy might be developed for the use of technologies in education. It proposes that the policy maker should start with the availability of particular media and their convenience for the learner before looking at the geographical, regulatory and economic constraints on policy. Questions of curriculum then need to be addressed; the paper explores in some detail how education by, with and about computer technologies affects the curriculum. Costs are also examined and the paper is able to draw on financial data, of a kind not available in the 1970s, to help in choosing between technologies. Finally, taking note of the fact that the paper was delivered at a conference in Barbados, it looks at the particular problems of developing a policy within a small state.

The next paper continues the exploration of methodologies for open and distance learning and does so with particular reference to basic and nonformal education, already touched on in part two. It is a summary version of a review, carried out for the World Bank, of mass-media approaches to basic education and agricultural extension. It draws from international experience – some of it now almost forgotten – of programmes of rural education with an extensive discussion of the achievements and the potential of group learning within nonformal education. As Papers 7 and 8 argued, nonformal education appears to have been in a decline. But the needs which it was confronting have not gone away and the record of the earlier experiences, reviewed in this paper, remains relevant to them.

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[40] There is now extensive literature on this topic so that the later sections of that guide, on writing good lessons, are not reproduced here.

The next two papers draw evidence internationally from teacher education. Paper 12, on the cost effectiveness of distance education for training primary teachers, was commissioned by the Asian Development Bank. By the time it was presented, in 1996, there was sufficient experience to draw robust conclusions on g ood practice which showed that. distance education had been successfully used for a v ariety of teacher audiences and for all the components of teacher education from subject knowledge to classroom practice. Good sets of cost data were by this time available and these are summarised while the paper goes on to examine the trade-off between quality and cost and the conditions under which a distance-education approach is likely to be both affordable and educationally sound.

Paper 13, delivered in Namibia, moves from Asia to Africa and from cost effectiveness to an examination of quality in teacher education. It begins by exploring the contested nature of quality in education where recent discussions, just in a handful of countries, had defined the purposes of teacher education in terms of economic benefit, social transformation, religion, technology, ethics and educational reform. Against that complexity, the available data on the outcomes of distance-learning programmes for teachers are examined and summarised. From these it is possible to identify conditions for success in teacher education which take the discussion on from that in the previous paper.

The next paper takes us from teacher education to higher education and presents the results of a single programme rather than an international review. It reports on the use of distance-learning methods, often using online technology, to offer master's level courses internationally, a t heme foreshadowed in Paper 6. A programme of scholarships, provided by the Commonwealth Scholarship Commission in the United Kingdom, made it possible for students in the developing Commonwealth to follow British postgraduate courses at a distance. The scholarships meant that students did not have to worry about financing their courses – often a major factor in explaining dropout – and had the benefit for the researcher that good data were maintained. These made it possible to draw conclusions about both effectiveness and the comparative cost of virtual student mobility of this kind as contrasted with conventional student mobility.

Paper 15, on capability, development, and open and distance learning takes us almost full circle back to Paper 1 with its assumptions about the capacity of open and distance learning to widen access to education.. This paper draws from the work of Armatya Sen and the power of his moral argument for expanding and strengthening education in the interest of human capability. The paper was presented at a seminar on distance learning for health and draws conclusions from practice in teacher education and higher education that can be applied more generally. The paper justifies its place at this point by moving in its conclusions to methodology with suggested conditions for success in open and distance learning that, it is argued, can be applied across the levels and sectors of education.

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These papers have tried to demonstrate that it is possible to draw generalisations from collected experience of open and distance learning and so to derive guidance from good practice. If education is a seamless robe, and if culture is increasingly globalised, there is merit in doing so by learning from all levels of education and from all parts of the

world. This collection of papers has probably learned most from teacher education and from basic education, partly because that reflects personal experience, partly because there is so much evidence of success from teacher education that it is fairly easy to draw comparative conclusions here, partly because there is so little evidence from nonformal education that it is important to record what we do know.[41] There is more in the literature elsewhere about higher education, the dominant mode of open and distance learning since the establishment of open universities, and probably more about secondary education, with valiant if sometimes faltering attempts to make it work, from Mexico to India to southern Africa. In all the sectors discussed in this part an attempt has been made to link evidence and methodology in the conviction that the one needs to drive the other.

The generalisations, conclusions and recommendations are, as promised in part one, informed by ideology. Just as the National Extension College was established with the hope of helping, in its small way, to redress educational inequalities in Britain, so the international work described here has been informed by a commitment to a fairer sharing of the world's educational resources. Open and distance learning does not always, or necessarily, have this egalitarian pedigree. It did so in Australia, where outback correspondence schools wanted to give remote children as good an education as they might get in the city, and in the American prairies where the University of Nebraska's correspondence school had the same intention. In contrast France set up a national distance education service in 1939, now the *Centre National d'Enseignement à Distance*, as a response to national emergency. The Soviet Union embraced distance education to teach engineering for strictly economic reasons. The new universities, created in Britain in 1992 from the former polytechnics, developed distance-education programmes in the next ten years as they sought to define niche markets and increase their international income. But, in practice, both the National Extension College and the Open University, products of the 1960s, drew from a particular political ideology and commitment.

In a sad counterpoint to that ideology, the papers notice how technology and economics may have made the redressing of inequalities more difficult, especially between the north and the south. Pressure in the north to bring computers into the classroom for example, with too little hard thinking and less research, has brought similar pressures to bear on the curriculum of the south (see Paper 10). But the relative costs are higher in the south as 'the costs of new information and communication technologies have an interesting feature when compared with other educational inputs: they are not linked to a national price structure, but quite the reverse, they tend to be similar worldwide for equipment, software, spare parts and consumables' (Orivel 2000: 147-8). The opportunity costs of making the wrong decisions about technology are, of course, also higher in the south. Technologies may help equalise access to learning throughout the world but they do not equalise the price, when measured in terms of local income or purchasing power. Similarly, as argued in Papers 14 and 15, the internet has made

[41] The work of the International Research Foundation for Open Learning has made a major contribution to understanding about the use of open and distance learning for teacher education, reported in an international overview (Creed 2001), a book (Robinson and Latchem 2003), case studies (Perraton, Robinson and Creed 2001 and 2007), a handbook (Perraton, Creed and Robinson 2001) and an advocacy document (Perraton 2010).

postgraduate education available internationally without the costs of travel required for conventional university enrolment, but has done so at a cost far beyond the means of most potential students. (Costs have risen not just with inflation but also because the costs of service industries have been rising faster than inflation generally.) While open and distance learning may be the heir to the mechanics institutes, and other nonconventional structures designed to widen educational opportunity, it can do so only within tight, perhaps tightening, economic constraints.[42]

Ideology, or a tenet of educational philosophy, is reflected, too, in the guidance on methodology in this part. Paper 1 looked at the role of the individual teacher within open and distance learning and that theme is picked up in these papers. In planning basic education, discussed in Paper 11, the most difficult challenge is to create or adapt a structure for group learning. (The paper does not offer any simple answer; whereas a school classroom may look much the same in any continent, structures for nonformal education move with much more difficulty across frontiers.) In teacher education experience has repeatedly shown that the most difficult element to organise, and potentially the one with the highest unit cost, is face-to-face support and the supervision of classroom practice. And yet the philosophical argument, that face-to-face teaching at its best has unique values, reinforces the claims for its importance within open and distance learning which run through these papers. The evidence reviewed confirms the paradoxical finding that, in planning open and distance learning, the most difficult decisions are not about the media and technologies of distance but about face-to-face contact, the element closest to conventional education.

Alongside that philosophical tenet is one from social science. These papers have consistently argued the need for practice to be informed by research. That need remains. Although we are far better informed about open and distance learning than we were a generation ago our research base remains thin, as argued in the overview to part one. The review of practice, in this part, reinforces that case for research.

The book opened by identifying the 1960s, the decade when open and distance learning began, as a decade of hope. Hope for open and distance learning has inevitably been tempered by the experience gained over the following decades. Only its most starry-eyed protagonists have seen it as a panacea for all or even most of the world's educational ills. But at the same time it has solid achievements, some of them documented here. With faith (or better still a commitment to good practice), political will, and good research, it still has a role in helping towards a society which, in Sen's formulation, enhances 'the freedoms that we actually have to choose between different kinds of lives' (Sen 2010: 18).

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9 Techniques for teaching at a distance

> *When the National Extension College and in its turn the International Extension College were set up, there was little available guidance on the writing of correspondence courses. Staff of the two colleges therefore set about learning their craft, benefiting from existing good practice available internationally, and from imaginative teachers willing to adapt the principles of good teaching to a medium that had remained outside most educational thinking. To help in its programmes of training, IEC therefore produced a handbook which moved from a discussion of course planning to the specifics of writing. It began with an argument for the use of a systems approach in planning, much on the lines shown in figure 2.1 in Paper 2 above, and then went on to the specifics of choosing media and developing effective teaching material.*[43]

There are many different media from which to choose in designing a system for teaching at a distance. In the first wave of development of correspondence education in the late 19th century, the post was the most commonly used technique. More recently work by organisations like the National Extension College, the University of Wisconsin Extension and the *Centre National de Télé-Enseignement*[44] has shown how television, radio and the rest are equally appropriate techniques. Since a number of different possibilities may be open to us, it makes sense to use, or at least consider using, as many as possible. In this way we can balance the strengths and weaknesses of the various different media. We will probably finish up with a more effective educational package as a result. For it is becoming clear that individuals learn in different ways and some probably learn better from one medium rather than from another. As L. J. Briggs and his colleagues (1967: 14) point out, 'Short of an absolute science of learning and instruction which would guarantee a way by which each child would master the objectives to a degree set by a standard, some justification exists for a "shot gun" approach. To the extent that our choices of media are faulty, use of several media in redundancy may be to some degree justified'. The change from one medium to another may also prevent students getting bored with the course, and may therefore help to keep them working – already recognised as one of the central problems in distance teaching. Finally, if we leave aside the exceptional tradition of correspondence education, then it is clear that the use of a variety of different media is part of the normal tradition of education in schools, colleges or universities. Since the invention of printing and the cheap distribution of books, teachers have in fact had to choose between oral and written instruction and have switched from one medium to another as they help students along. In doing so they have made a choice between media without necessarily having a theoretical basis for their choice, and of course without inventing grandiloquent titles like 'Articulated Instructional Media', or 'Integrated Multi-Media Educational Experience'. Distance teaching however, forces us to look more sharply than ever before at this question of choosing media – if only because it is an unfamiliar teaching situation. In practice the choice is seldom as wide as it is in theory, and the correspondence educator can seldom in fact choose the perfect combination of

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[43] Perraton, H. (1973) *The techniques of writing correspondence courses*, Cambridge: International Extension College

[44] Later renamed *Centre National d'Enseignement ä Distance (CNED)*

correspondence, radio, television, programmed learning and face-to-face instruction. The practical limitations of air time, of printing costs and of the distribution of students mean that compromises have to be made all the way along the line. One of the aims of this pamphlet is to suggest ways of choosing better compromises.

There is one theoretical point of the greatest importance which underlies the question of choosing between teaching techniques. Generally speaking where one technique has been compared against another they have been found equally effective. There is, for example, a very large body of American literature comparing televised teaching with face-to-face teaching. In an exhaustive analysis of this literature Chu and Schramm (1968) have demonstrated conclusively that with matched groups of students there is usually no significant difference in learning between televised and face-to-face instruction. The research on other techniques of teaching produces similar findings. This, which might be seen as a limiting finding is, in fact, regarded by Chu and Schramm as a liberating one: they go on to argue that it enables us to choose which medium is most suitable for a particular job in a particular situation, with the reassurance that all will work reasonably well.[45] In choosing between media for distance teaching then, we can choose the medium which appears to be most suitable for a particular educational problem with which we are faced. In fact, our choice is bound to be a pragmatic one at least until we have a more developed theory of instruction.

But it is worth noticing in passing two very attractive theoretical possibilities. First, the New York Institute of Technology has begun to develop a battery of courses managed by a computer, so that each student is offered a variety of different ways of learning. They hope gradually to match particular media – particular ways of presenting information – to students' individual learning styles. Second, an American team (Briggs et al. 1967) has produced an elegant analytical framework for designing educational materials in which they relate the different teaching media to different types of learning according to Gagné's hierarchy (cf. Gagné 1966). Both approaches remain at the experimental stage. Their relevance is that they point out possible future ways ahead in which distance learning can be more closely tailored to students' individual needs and interests, and to what is known about human learning generally.

So much for the future. For the present, a fairly crude analysis of the different methods that may be available enables us to make an informed choice between different media in designing a course.

Books

In thinking about the particular place of books in education, it is worth noticing something so obvious that it may be overlooked: books are extremely convenient to use. They require no additional apparatus, can be read at any time and place, and can be rapidly skimmed. This last quality is important and is in contrast with, say, a radio or television programme where one cannot avoid spending time on redundant or irrelevant material. The existence of the publishing industry means that we are quite likely to find books already in existence which are suitable for a correspondence course even if they

[45] As noted in the discussion on this point in Paper 3, the argument has since been reinforced in further research (e.g. Clark 1983, 1993).

are seldom exactly what we want. In order to accept the economic advantages of using books designed for a general market, we have to accept the constraints which the form of those books puts upon our own correspondence course.

Just as the existence of books in his own field is a convenience to the correspondence course writer, so their form offers advantages to the student. In designing a correspondence course we should usually ensure that all the factual information which a student needs should be in print – either in a book or in the course itself so that he can refer to it whenever necessary. (This does not mean that every point has to be explained in print; there will be situations in which a lengthy explanation is better given through a different medium. In that case, the printed version may simply have the function of reminding the student of the explanation.)

After this eulogy of books, the obvious question is: `Why not give them a good book and let them go away and learn it by themselves?' There are three kinds of answer. First, this is often simply an unreasonable suggestion. One of the aims of much teaching is to equip the student with skills that will enable him to learn without further guidance from a teacher. A student who has chosen to study by correspondence clearly does not feel that he has reached that situation. Second, text books, at least, are not usually designed to be used that way: their authors assume that they will be used in class, with a teacher. Furthermore, text books may prove too expensive for our students, or may not even be available locally. Problems arise, too, when the books on which a course is based go out of print. Third, books have some qualities which limit their usefulness. And it is these weaknesses which are of particular significance in considering which medium to use for which job in a correspondence course.

Unless an author is a writer of genius – in which case he is more likely to write a novel than a text book – it is difficult for a book to give the emphasis and stress to the important issues which is a natural part of any face-to-face lesson. Without the variations in tone, pace, pitch and excitement which are a normal part of face-to-face communication, the author is inevitably at a disadvantage. And so, while books may be very efficient at conveying information, and even at stimulating cognitive learning, they are much less suitable for affective or psycho-motor learning. (If you have ever tried to write technical instructions you will be familiar with this last problem.) Similarly it is a rare author whose excitement for his subject can be conveyed in written prose: text books especially tend to be impersonal and unexciting. It is more difficult for them to convey the enthusiasm which can quite easily be conveyed face-to-face or in a broadcast.

Finally, books are a one-way form of communication. We can't tailor a book to the needs of our students, or alter it once the course has started, if it doesn't prove as suitable as we had hoped. On the other hand it may be possible, though probably inconvenient, to alter correspondence course material, while the tutor's response to his students will always be affected by their needs and interests. And one of the most important uses of broadcasts and face-to-face sessions is to cope with student problems as these crop up, and to adapt the educational process more generally to the needs of the students as these are redefined in dialogue.

Radio, television and recordings

For many purposes, we can consider radio and television together. In contrast with books, both give a fleeting impression rather than a permanent record of the information they convey. In contrast with books, too, both give the student little or no choice of when to study. This is a mixed curse: many research studies have shown how important it is to arrange for broadcasts to be repeated at least once in order to give students a fair chance of watching or listening to them. But the regular pacing which a weekly or fortnightly broadcast enforces on students has its merits too. Recent experience in France has shown that open-circuit broadcasts, despite all the inconvenience of fixed times (never the right ones for everyone) are more effective in keeping students working than the use of tape recordings.

Thus broadcasts have advantages for correspondence education quite apart from their use as an effective way of communicating some types of information. Many correspondence students have commented on their value in communicating enthusiasm and in overcoming the loneliness and impersonality of distance study. In part, broadcast lessons help to overcome students' isolation simply by coming at regular and frequent intervals, often more regular than any other communication from their tutor or college. In part they probably seem personal because they are, in some real sense, like face-to-face communication. In the case of television, too, broadcasts may appear personal because we can see the speaker and so benefit from his gestures and attitude and expression, things which are necessarily lacking on the radio or telephone or in print.

Thus there are psychological arguments for using broadcasts if possible, just as there are social ones. Broadcasts may well enable us to reach groups of students who would not otherwise take our courses. Broadcasts, too, may give us greater flexibility in planning a course. If it is possible to defer the production of at least some broadcasts until after students have started working, then it may be possible to plan them around students' common difficulties.

It is more difficult to define the pedagogical role of broadcasts and in doing so it is necessary to distinguish between radio and television. The most important contrasts between them are not educational at all but economic and social: radio is far cheaper than television to produce. (The BBC Handbook for 1972 shows that an hour of radio cost £1,045 in 1970/71 when the comparable figure for television was £10,316.) As a result it may be easier – because cheaper – to design a flexible learning system with radio rather than with television. With television, pressures to make programmes which can be used and re-used will be far stronger. Radio and television often reach different audiences, too: in north-west Europe and America television generally has a larger audience than radio while the position is reversed in many developing countries.

The pedagogical differences between radio and television are more subtle. Television, of course, can do some things that radio can't, like show movement or change or a moving demonstration. These qualities will sometimes make it our first choice. The National Extension College, for example, found it of particular value in teaching statistics where the relationship between a series of events and the histogram showing their frequency could be demonstrated far more clearly on television than would be possible any other way. On the other hand, the National Extension College found radio to be superior in teaching English, where television might merely have added a

distraction. Emmeline Garnett, who wrote the scripts for their ordinary level English course described its value:

> Radio concentrates the brain through the ear to a quite remarkable degree, and at the same time releases the imagination quite vividly. It has thus always been a wonderful medium for drama, and for the reading aloud of prose narrative. It is not quite so good for the concentrated wordage of poetry, but it can still be good, particularly if the listener can also have the text from which to follow. So far, then, radio is a fine medium for presenting the sheer stuff of the literature paper ... but radio is also the best medium for linking 'language study' with speech rather than with printed rules. *(McAlhone 1967: 7)*

The technique of getting students to listen while following the printed text works in other subjects, too: sound recordings with an associated duplicated text have been used succesfully in teaching medicine. Here, sound can be used to direct the student to particular aspects of a printed text and so can add the emphasis necessarily lacking in print.

Beyond broadcasting's power to stimulate or enliven learning, to stimulate the imagination and to focus attention, it has particular value in synthesising: the spoken word is probably better than the written in drawing together the different elements in a subject whose fusion makes for clearer understanding. John Scupham, the distinguished former Controller of Educational Broadcasting to the BBC, sums up the peculiar values of broadcasting in these words:

> In any learning situation the most important of all programme qualities is structure. A programme can best achieve its educational aims, whatever attractions it offers by the way, through a compelling coherence, through the boldness and clarity of the main design, through the strength of what producers even of programmes in pure mathematics like to speak of as 'the story line'. A broadcast so conceived presents a pattern that can be grasped as a whole (whether it is the pattern of the binomial theorem or the pattern of *Antigone)* and leaves its audience with at least some enhancement of the power to see such patterns for themselves. The strength of the broadcasting medium lies in synthesis. The task of the producer of educational programmes is to subdue all the various means at his disposal to the needs of his theme so as best to display coherences and relationships, whether in practical, imaginative, or intellectual terms. To show caterpillars and carpenters as part of a single ecological complex; to shift from the jib of a crane seen against the skyline to a diagrammatic representation of the triangle of forces that it exemplifies; to go on from the exposition of an irregular verb to the human situation in which it is used; to place the day's events in the perspective of history – these are characteristic achievements of the broadcasting media. An educational broadcast may be primarily an example of 'programmed' instruction, compensating for the absence of immediate feedback by the careful breakdown of an argument into a series of steps, and using its own means of compelling and directing attention to keep the mind actively moving forwards in response to the whole carefully ordered sequence of thought. It may, to use a convenient cliché, be a 'window on the world', offering an ordered extension of experience in time and space. It may have the character of a work of art in so far as it ministers, in Santayana's phrase, to 'the contemplation of things in their order and worth'. *(Scupham 1967: 165-6)*

His summary points up one of the key values of television: its ability to bring students a direct, as opposed to a symbolic, representation of reality. If we want to relate learning to the world of everyday experiences, television offers us a way of doing so: we may be able to do the same thing with radio, skilfully used. The need to relate broadcast teaching in this way was stressed by Joseph Trenaman in his masterly study of *Communication and Comprehension* where he urged the importance of personification, dramatisation and a story line, especially for students with little formal education. As he says, 'If ... one wished to convey an abstract subject to the widest audience ... it would be essential to find some way of presenting the arguments through the more familiar aspects of the lives of ordinary people, and, if possible, to convey them in the form of story or a play' (Trenaman 1967: 109).

It is generally easier to carry a story line or to present something in a personal and dramatic way, through a broadcast than through print. Thus there are pedagogical factors, as well as social ones, which help determine where to use broadcasts and where to use other media, though the social factors may often be the more important.

Face-to-face meetings

From the Greeks onward, face-to-face communication has, almost always, been regarded as the normal way of learning or teaching. And it has been regarded as the best way, so much so that only recently have educational theorists begun to define the roles which are particularly or even uniquely appropriate for face-to-face communication.

Two characteristics should control its use in a learning situation. First, face-to-face communication between a student and a teacher is very expensive: most of the others we have discussed make more efficient use of manpower. Second, it is uniquely valuable only where the numbers of people involved are so small that the behaviour of the teacher can be modified by the reactions of his students. After all, in a classroom situation, pupils are largely dependent, both for information and for inspiration, on the highly individual skills of their teacher. When teachers are over-worked, inadequately trained and badly equipped, as they often are in many parts of the world, the advantages which we associate with face-to-face teaching are effectively lost. There is no inherent merit in the lecture to a large audience and no evidence to show that this is a superior way of teaching than, say, radio or television.

Face-to-face communication may have psychological advantages over other media for some students in encouraging them to learn or motivating them to start learning. (For other students broadcasts or even correspondence lessons may in fact be superior.) But there are two ways in which face-to-face teaching has inherent advantages. First, in a small group of people with a teacher, it is possible to base decisions about what should be taught much more closely on the needs and priorities of the students. Our distance teaching system needs to do this in any case but it can be achieved far more readily in a face-to-face situation. Similarly face-to-face instruction has a particular value in dealing with students' individual difficulties. Secondly, in a face-to-face situation there should be immediate feedback between teacher and student: both should contribute to the discussion. This opens up the possibility of changing the direction of the dialogue altogether: if people are learning together they may choose to explore an aspect of a subject which had not been foreseen beforehand – again something at present impossible through any other form of communication. Thus face-to-face teaching can

be more open-ended than teaching on paper or through the air. In practice, of course, it may not be. But in choosing between media it is these qualities – of adaptability and openness – which should guide us in our use of face-to-face instruction.

Finally there is one quite different aspect to face-to-face communication. Where students live close enough to each other student group meetings can be of very significant value in learning. In Norway and Sweden, and in many parts of the developing world, study circles have been set up so that, even if they haven't a tutor, students come together to study their correspondence work. There is some evidence to show that students can learn as well in a group like this without a tutor, jointly following a broadcast or a correspondence lesson, as from a tutor. Certainly they can help each other enormously with each other's difficulties and, of course, can overcome some of the correspondence student's feeling of isolation. And the use of group meetings enables educators to work through the existing networks, and patterns of leadership, in the communities with which they are concerned.

The problem of choice

We don't have a theory of instruction which enables us to make easy decisions about the best medium to use in a particular situation. Indeed Paulo Freire has warned against too narrow an interpretation of the plea for one by pointing out that,

> if our option is *for man* education is cultural action for freedom and therefore an act of knowing and not of memorisation. This act can never be accounted for in its complex totality by a mechanistic theory, for such a theory does not perceive education ... as an act of knowing. Instead it reduces the practice of education to a co mplex of techniques, naively considered to be neutral, by means of which the educational process is standardized in a sterile and bureaucratic operation. *(Freire 1972: 13)*

The point of this brief summary of what is known about techniques is to offer help in choosing the techniques we use to achieve ends that – we hope – are humane rather than mechanistic. Our choice will depend on the resources available to us and the kind of learning situation in which our students are working. Similarly, the way in which we integrate the various different media will depend on the kind of course being developed. Questions about linking the media are not, therefore, considered in further detail here – because now that the theoretical bases for decisions about linking them have been stated, the practical arrangements to be made will depend on the course writer's own situation.

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10 Choosing technologies for education

This paper picks up some of the issues raised in Paper 9 but addresses them from the standpoint of the policy maker rather than the course writer and, in doing so, takes account of the changes in the available technologies over the intervening years. The paper was delivered at the Caribbean Telisphere conference on The Caribbean and technology enhanced learning *(St Michael, Barbados: 24-27 November 1999) and later published in the* Journal of educational media.[46]

Communication technologies have been used for three purposes: to widen access to education, to raise its quality, and to reform it. The last two tend to shade into each other as qualitative change can be seen as a way of reforming, even transforming, education. We could illustrate this from a range of technologies. Hindsight makes it easy to draw illustrations from television. It was used by universities, starting with the British Open University, to widen access to education and make it available to people outside university and college walls. By bringing resources into the classroom, it was seen as a way of raising the quality of classroom teaching. And, in a handful of projects from Samoa to Côte d'Ivoire, it was set up with the intention of transforming the educational service. Today we have a much wider range of technological options than, say, the choice between conventional teaching, radio and television. But we can probably ask the same questions about a number of them.

The paper went on to summarise the work of the International Research Foundation for Open Learning (see Paper 4), from whose experience the arguments were drawn.

Five policy questions

Our previous work, and current research plans, have led us to propose a set of five questions which need to be answered in developing a national policy for the use of communication technologies in education. An educational policy of this kind probably needs to be framed within the context of a national policy for communications.

Availability and convenience

First, we need to ask what technology is available for a particular audience and acceptable to that audience. Globalisation means that we can have Internet access, at a p rice, almost anywhere in the world. It does not mean that computer-based education will be suitable for any particular audience. Convenience and acceptability may be more significant than the desire to be at the cutting edge of technology. Television, for example, has proved to be a potent way of widening access to education where it is available in learners' own homes. Its record where people have to go somewhere else in order to watch it is more chequered. An early experiment in Uganda, for example, found that the only place people could watch television was in bars were the atmosphere did not lend itself to serious study. More recently, teachers offered inservice programmes of continuing education in India, who had to attend at centres away from home in order to take part in videoconferences, voted with their feet by staying away.

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[46] Perraton, H. (2000) 'Choosing technologies for education', *Journal of educational media* 25:1

The need to relate technologies to our audience forces us also to ask about the pre-requisites that need to be in place for any particular technology to be useful for education. Education seems to have been most successful in its use of technology where it has followed the commercial and entertainment sector rather than attempting to lead it. If costs are brought down, and a technology made widely available, by a demand that is greater than that of education, then it may be more realistic to use that technology for educational purposes.

Local and national constraints

Second, and the point is closely related, we need to look at international variations in the ways in which technologies can be used. Issues here may be geographical, regulatory, or economic. In Thailand or India, for example, it is possible to consider the use of a dedicated satellite or dedicated satellite transponders for education because of the scale of the country. In Latin America, outside Brazil, it looks as if satellite use may make sense only if there can be agreement between countries about educational programmes that go across frontiers. A World Bank attempt to get agreement on this two years back yielded little success. Small states are likely to be much more constrained in the access they have to various forms of communication. Regulatory issues will limit the access to international communication highways. If Cable and Wireless has a monopoly of external communication within your territory then this will limit the extent to which you can get cheap and easy access to things outside the territory. Economic constraints always restrict us. Schools, in many parts of the world, have started to use computers as a means of getting access to resources on the Internet, or of communicating with other schools, but in many cases are inhibited by the cost of an ISP provider and the line charges. The costs of computer communication in southern Africa, for example, are higher in absolute terms than they are in North America and relatively much higher.

Curriculum

Third, once we have considered the availability of a particular technology, and related it to our national situation, it is possible to move on and consider what makes sense educationally. Our starting point here is a series of research findings, yielding consistent results, showing that there are unlikely to be significant differences in the educational effects of different media. (Chu and Schramm 1968, Clark 1983 are among the many overviews that have demonstrated this important finding.) The fact that, by and large, you can use any medium to teach anything, is a liberating one. The educator can consider the needs of the audience and the appropriate combination of media that make most sense for a particular purpose. For there may be good practical reasons for some choices – an aural medium for teaching a language with tones for example, or a visual medium like television for demonstrating a simulation. But the important thing is to start with the curriculum rather than with preconceptions about a particular medium. We may, too, want to use a particular medium for broad social as well narrower educational reasons. Television in the past, a website today, may be a significant part of the public image of an educational institution.

In making educational choices we need to distinguish between the use of technologies to distribute learning material to students and their use to allow interaction. We can, for example, use a computer network to distribute teaching material to distance-education

students or to allow schools to print materials, available through Internet, for their students. The main consequence here is likely to be a shift of costs from the centre to the periphery, or from the teaching institution to the individual student. (We do not know enough about this and it is an area of research on which we would like to move forward.) Alternatively, we can use computer links to facilitate dialogue with students, perhaps replacing the slowness of correspondence education through the post by the near-immediacy of email and computer conferencing. This second kind of use is educationally and economically quite different from the first. It is about two-way communication, not one-way, and, by easing contact between student and tutor, likely to increase the demands on tutors and therefore increase costs.

Above all, in seeking appropriate educational use of technology, we need to start with the curriculum. The use of computers in schools provides an illustration.

Computers have been used in an attempt to change, strengthen and improve basic education in a variety of different ways and for a variety of different purposes. It is worth distinguishing between them so that policy decisions can sensibly reflect educational purpose. An analysis by the Commonwealth Secretariat, which drew on reviews of Commonwealth-wide practice, usefully distinguished four rationales for introducing computers to education; the development of Internet communications means that we now need to add a fifth.

> *Rationale 1:* To build a resource of people who are highly skilled in the use of information technology. Where governments see information technology as a means of strengthening the economy, and want to develop a workforce with vocational skills for computer-related activities, computer-education programmes have been set up to develop a cadre of people with specialist skills.
>
> *Rationale 2:* To equip all students for a future in which technological awareness and basic computer skills will increasingly be important for greater numbers of citizens. Countries have adopted this approach as they see that, whether or not the country is likely to be a producer of computer hardware or software, their citizens need to be in a strong position to take advantage of technological developments as they arise.
>
> *Rationale 3:* To use the technology to enhance the existing curriculum and to improve the way in which it is developed. Computer-assisted learning programs, in which the computer takes over some of the activity of the teacher, fall within this rationale.
>
> *Rationale 4:* To promote change in education by moving towards a more relevant curriculum and a new definition of the teacher's role. Some computer projects have been designed to shift the curriculum in the direction of practical learning of information-handling and communication skills rather than over-concentration on memory.
>
> *Rationale 5:* To allow learners to seek information from databases, especially through the Internet, and use computer technology to communicate with other schools, colleges and learning communities. This rationale opens up new learner-initiated opportunities. This fifth rationale has been developed in the last five years.
>
> (First four rationales adapted from Commonwealth Secretariat 1991: 8-12)

Of course the rationales overlap and national policies may embrace more than one but their curricular and cost implications are different. In particular, the extent and level of investment demanded will vary according to the weight given to any one rationale. Rationale one, for example, would suggest putting most investment in further education or vocational training. Rationale two suggests there should be at least a minimal investment in all schools, probably at the upper end of the compulsory cycle of education. Rationale three could lead either to significant use of, and expenditure on, imported software or major national investment in software development. The point of the illustration is to highlight the need to consider curriculum before technology.

Costs

Costs come next. In order to make sound decisions about technology choice, we need to know how much they cost. Here we have two difficulties. First, the behaviour of the costs of technology differs from that of conventional education. Second, we are short of data on the costs of various technologies from developing-country evidence. In the case, again, of using computers in schools, we only have two or three cost studies from the south.

To make sense of the cost data, we need to distinguish between the use of technology to provide an alternative type of education, eliminating or reducing the cost of teaching staff, and its use to raise quality without affecting staff numbers. Where technologies are used to raise quality, generally within the classroom, they are likely to increase costs as no staff salaries are saved. Where they are used in distance-education programmes, to provide an alternative to conventional teaching, then they may make it possible to bring costs down below those of conventional education. To illustrate: interactive radio instruction has been widely used, in a set of projects funded by USAID, to raise the quality of teaching in schools. The cost per student per annum is estimated to lie at between US $3.26 and US $8.12 (in 1997 US $) but these costs are over and above those of ordinary schooling (Adkins 1999: 40-1). Similarly, the reported costs of using computers in school are add-on costs amounting to between 10 and 37 per cent of existing costs in Chile and 13 per cent in Costa Rica (Potashnik 1996: 19-21; Wolff 1999: 29-30). (In England it looks as if we are prepared to spend 0.6 per cent of the primary school budget and 1.6 per cent of the secondary school budget on computer-based education; some agencies in the north do seem to be urging the south to spend proportionately more on technology than the north is willing to (Perraton and Creed 2000: 72; DfEE 1999; Audit Commission 1999).) In contrast, there is solid evidence from a range of countries that distance education for teacher training, providing a substitute to in-college study, can achieve results at a cost significantly lower than that of conventional training (Perraton 1993: 385).

While we are short of cost data, work we completed at IRFOL for the European Commission enabled us to identify a range of costs for a variety of technologies for open and distance learning in higher education within Europe. The costs would obviously be different in other continents and at other levels of education. But the relationship between the costs for different technologies may well hold fairly constant.

We began by looking at the cost of producing material in print, assuming that one always starts with a text and finding that distance teaching based on print was the least-cost option. At this stage we did not examine the costs of student support, but

concentrated on development costs. Costs were calculated in terms of student learning hours. This then gave us the costs shown in table 10.1. Two conclusions follow: first, we need to find solid social and educational arguments for moving away from the simpler technologies. There will often be such arguments, but they need to be clearly worked out and openly stated. Second, the data are more limited than we would like and far more research is needed on the costs, benefits and outcomes of different technology choices in developing countries.

To understand and interpret the costs, within a co mmunication policy, we need therefore to ask whether we are trying to strengthen education, which is likely to increase costs, or to extend it to new audiences using new approaches which may – only may – be possible at lower unit costs. Then we need to seek out hard evidence on what the costs really are.

Table 10.1: Comparative production costs of some technologies

Medium	*Cost per student learning hour ^^*	*Cost in 1998US$$*	*Ratio to print cost*
Print	500	825	1:1
Radio	15,000 to 27,000	24,750 to 44,550	1:30 to 1:54
Television	90,000 to 125,000	148,550 to 206,250	1:180 to 1:250
Audio	17,000	28,050	1:34
Video	18,000 to 84,000	29,700 to 138,600	1:36 to 1:170
CD-rom	20,000	33,000	1:40

Source: Perraton 2000: 149[47]

Small States

Finally, and appropriately for the location of this conference, we need to think about the issues identified so far in the context of a small state. Here new communication technologies are a double-edged sword. On the one hand, they may allow a small island developing state, for example, to have wider access to sources of information than was ever previously possible. On the other hand, there is an ever greater danger of cultural hegemony by the large countries and large international companies who control the production of hardware and software. Resolving the dilemma is not easy. It presents a challenge to educators in small states and to the research community.

Small states have very different success stories: Iceland, Mauritius and Singapore form an intriguingly varied trio. Alongside them, the achievement by Barbados of near self-sufficiency in food during World War II, and world pre-eminence in cricket in many decades, demonstrate in just two ways its strength and resilience. Small states can, perhaps, be expected to resolve their own communication problems provided that the rich, large and powerful do not actively prevent them.

[47] This drew on Hülsmann's research work at IRFOL reported in Hülsmann 2000.

Conclusions

There are three conclusions. First, if these five questions are asked and answered, they should lead to a hard-headed choice between technologies: tough thinking is better than following fashion in choosing technologies.

Second, we are under-informed. We need to know much more about the actual benefits of technology use in developing country situations and the actual costs achieved.

Third, I would put the educational questions first. Industrialised countries have wasted huge amounts of public funding on ill-thought introductions of computer activities into schools. A good slogan would be: 'consider the curriculum and count the costs'.

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11 Mass media and basic education

The International Extension College was commissioned by the World Bank in the early 1980s to carry out a literature review of the use of mass media to support nonformal education. This followed work done by the Bank on distance education for formal education which led to its publication of Alternative routes to formal education *(Perraton 1982). This paper is extracted from the much longer report and is included because its findings are still relevant to educational planning and to the themes of this book. That report summarised the evidence on the effects of agricultural extension and of conventional adult education in order to allow comparisons with the use of mass media. It also provided detailed cost data. This is a brief summary, concentrating on the evidence of the effectiveness of various approaches to the use of mass media. The full paper which includes extensive details on costs, as well as on the projects and programmes reviewed, is available on the World Bank website.*[48]

This paper examines the role of mass media in supporting basic education and agricultural extension. It addresses the question, 'how far, and in what way, can mass media be used as a s upplement or as an alternative to orthodox methods of basic education for adults or of agricultural extension?'.

Its origin is two-fold. First, in very broad terms, it takes as a starting point the recognition that orthodox methods of extension, as of basic education, are coming up against the limits of money and manpower. The burden of school budgets means that ministries of education cannot afford to teach adults in the same way, incurring the same unit costs, as they do children. Similarly, in many countries, it is not possible to expand the agricultural extension service and improve the ratio of extension agents to farmers. Existing ratios and existing methods of working are pressing hard against financial barriers. This makes it appropriate for educators and agriculturalists to seek alternatives to their orthodox, face-to-face, methods of communication.

Second, the study follows the Bank's earlier examination of the educational uses of radio (reported in *Radio for education and development* (Jamison and McAnany 1978)) and of distance teaching for formal education (reported in *Alternative routes to formal education* (Perraton 1982)). These suggested the potential value of using mass media and distance teaching methods for out of school education and for extension which are examined in this paper.

Adult education and agricultural extension have different roots and are often quite separately administered. In the eyes of some practitioners they have different objectives. They are considered together here, however, because of their interdependence. Basic education for rural people will concern itself with agriculture if it is to speak to their condition. Agricultural extension, if it demands more than an unthinking response to the extension agent's remembered instructions, relies on the understanding which is the main aim of basic education. In practice, too, many peasants receive their basic education, about agriculture at least, principally from the agricultural extension agent.

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[48] Perraton, H. 1983 'Mass media, basic education and agricultural extension' in Perraton, H. et al. (ed.) *Basic education and agricultural extension Costs, effects and alternatives* (World Bank staff working paper no. 564), Washington DC: World Bank (available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/01/06/000178830_98101903415224/Rendered/PDF/multi_page.pdf

And in practice the methods developed by educational agencies in using mass media are relevant to agricultural extension and vice versa.

The paper went on to review the aims of basic education and the evidence on the costs and outcomes of conventional approaches to agricultural extension and to adult education, including literacy programmes, before examining various ways of using mass media for adult, rural, education.[49]

Using mass media

We now turn to the experience of the third world in using mass media as a support, and as an alternative, to orthodox basic education and extension.

The evidence on mass media is patchy. It covers a variety of projects, ranging in their intentions from teaching narrow skills, as in much agricultural extension, to a basic curriculum, as in some of the radio schools of Latin America. Where results seem applicable to this study, we examine projects whose aims went beyond basic education as we have discussed it. A further difficulty in interpreting the literature arises from ways in which mass media have been used in different countries and different continents. Some patterns of use, for example, have developed only in a single continent which forces us into extrapolating from the experience of one continent to another, and making intellectually uncomfortable comparisons between continents.

In this chapter we look in order at the use of mass media when linked when group study, at its use with feedback for individuals, at radio, and at rural newspapers.

Mass media with group study

Learning groups, usually supported by radio, have been organised in a number of different ways. The earliest pattern of organisation came from the radio farm forums of Canada. Groups of farmers met together once a week over a number of months or years to listen to the radio programme, discuss it, and then go on to act on its advice. Later farm forums were established in India and Ghana and in other countries of Africa and Asia, with mixed success. A different kind of organisation was developed in Latin America with radio schools. Each school is a group, usually of adults and often based on a single family, who study an organised curriculum by listening to the radio and following printed lessons. The schools are supported by central, non-government, organisations such as ACPO (Cultural Popular Action) in Colombia, which have, for the most part, been established by the Roman Catholic Church. Both farm forums and radio schools are expected to run for a number of years. A different kind of group study has been developed in Tanzania – the radio campaigns. Here, efforts are made by a wide number of government and party organisations to set up a very large number of learning groups, embracing a significant proportion of the adult population, but for these to work

[49] The Bank was at this time interested both in agricultural extension, which was intended to reach out to all farmers whether they were literate or not, and in basic education. The group-study approaches discussed below were of particular significance where they offered a means of reaching nonliterate audiences. It was also interested in the relationship between education and farmer productivity where its own research reached highly influential conclusions showing how even as little as four years of basic education was correlated with increases in agricultural productivity (Jamison and Lau 1982)

together only for two or three months. Campaigns have been used for political, health and agricultural education in both Tanzania and Botswana.

The paper went on to review the evidence on the three approaches identified leading to summary conclusions on each of the approaches and to a general conclusion on group learning.

Radio schools have succeeded in attracting between about 1 per cent and 5 per cent of rural adults annually. In addition to these, their radio programmes and newspapers have reached much larger eavesdropper audiences. They have established organisations which can serve students in their thousands, and have developed a method of teaching which achieves a fair measure of success in educational terms. In other words, radio school students have relatively high results in terms of examination results or promotion from the equivalent of one school grade to the next. The schools appeal to a significant proportion of relatively poor peasants, though seldom to the poorest. They have been less successful in achieving any major transformation of their societies.

Radio forums: We can sum up:

> Forums have reasonable success in attracting a cross-section of their potential audience.
>
> They have failed to attract sufficient support from governments for them to expand to the point where they reach significant proportions of the population.
>
> They provide a two-way channel of communication between government and farmers.
>
> There is evidence that farmers learn through attending forums and make changes in their methods as a result.
>
> We do not know enough about the attractiveness of the farm forums where most farmers own their individual radios.

Radio campaigns: Experience of campaigns is limited to two countries. Undoubtedly in Tanzania where they have been most extensively used they have been helped by the political structure which Tanzania has created for communication throughout the country and for adult education. But we can sum up with four conclusions which would apply more generally:

> The campaign method enables educators to reach extremely large audiences although, to do this, it is necessary to set up a large organisation to service groups and train group leaders. This imposes major burdens on the agencies responsible.
>
> Campaigns have some success in reaching the poorest members of society and in reaching non-literate students.
>
> Campaigns appear to have a successful record both in enabling people to learn from the radio, from print and from group discussion and in stimulating activity on the part of participants.
>
> As it is of the essence of such campaigns that they run for a short time, there are severe limits to the educational content of a radio learning group campaign. Even the successive campaigns in Tanzania did not add up to a curriculum comparable to that of the Latin American radiophonic schools.

There are theoretical grounds for believing that group learning, linked with mass media, should be effective. It allows personal encouragement and discussion to support the suggestions made by specialists in print or by broadcast. And it allows learners to discuss ways in which the, necessarily general, information from these media can be applied in their own community. Practice tends to confirm the theory and we can conclude, on groups generally, that they do provide a mechanism for large numbers of people to learn both educational material in general and agriculture in particular. The wide variation in styles of group learning between different countries, and different continents, make it more difficult to generalise about the best pattern of organisation for a particular country or a particular educational problem. Where such an organisation exists, group study makes possible communication from learners to educational or agricultural establishments. But their success depends on the existence of an effective supporting organisation on the ground, as well as the production of effective teaching materials.

Mass media for individuals with feedback

Mass media are often used as one-way channels of communication. Usually there is no ready channel for a n ewspaper or a radio station, for example, to receive regular feedback from listeners or readers. Of course both inevitably receive some feedback: producers travel the countryside seeking reactions to their programmes, newspapers get letters from their readers, figures of listenership or sales provide some information to managers. It is useful, however, to distinguish between that kind of feedback and attempt to provide it in regular and systematic ways. A number of broadcasting projects have created structures which assure them of regular feedback from listeners and have used this feedback as a basis for their programmes. In a rather different way INADES-formation uses feedback on a r egular basis in teaching better farming techniques through print.

This section of the paper went on to look at three case studies, of INADES-formation in francophone West Africa, of the Centro de Orientación Familiar in Costa Rica and at a question and answer programme run by the Botswana Extension College.

On the, admittedly narrow, basis of three case studies we can conclude that the existence of feedback links to producers of mass media can

> help ensure their effectiveness by keeping them in touch with their audience;
>
> lead to very strong feelings of involvement by learners with teaching agencies;
>
> if radio is used, attract large audiences and ones which may have a higher proportion of women, and of the poor, than are reached by other forms of adult education.

Radio

The great majority of broadcasts are aimed not at groups but at individuals, and without any attempt to organise feedback. But, while there is a considerable amount of educational and agricultural broadcasting, often produced for ministries of agriculture, community development, education or health, little research attention has been directed to it.

It is worth putting that educational broadcasting in context. First there is not very much of it in contrast with broadcasting generally: 'less than 5 per cent of the Third World's total hours of radio programming were defined by UNESCO as educational' in their

1974 Statistical Year Book, (Gunter and Theroux 1977: 288). Second, while educational broadcasts may say one thing, the other 95 per cent may be saying something quite different. The problem is particularly acute in Latin America where broadcasting is dominated more by commerce than by government. In many third world countries the mass media communicate the values of the industrialised metropolitan countries:

> The media in developing countries take a high percentage of their cultural and entertainment content from a few developed countries, and chiefly from a few large producers in those countries … The developed countries get the selected best of the culture (chiefly music and dance) from developing countries; the latter get a lot of what on any objective standard is the worst produced by the former.
>
> Transnational companies are playing an ever more active role in the worldwide provision of communication infrastructure ... When these influences become dominant in very different cultures, the effect is to impose uniformity of taste, style and content. *(MacBride et al. 1980, p.163)*

And that uniformity is one which reflects the values and aims of the transnationals and their metropolitan basis. These may be completely at variance with the avowed aims of government and development agencies. In Latin America for example, print and broadcasts alike have this character.

> In comparison to the non-Latin American dailies, those of Latin America allocated much less space to developmental information, considerably more to sports and amenities, and a little more space to racially negative information...
>
> … those studies available on radio and television content suggest that both these media, but particularly television, pay considerably less attention to developmental information; they seem to play up trivial matters to a much higher extent than it occurs in the print media.
>
> Studies specifically concerned with mass communication as related to rural development have found that even those messages specially addressed to farmers are geared – in content and in form – exclusively to a minority among these, the city-based large land-owners. *(Beltran 1974: 374)*

Thus in considering the educational effects of mass media on individuals we have to keep in mind that we are dealing with a small proportion of the total output – whether in print or through broadcast – concerned with values which are likely to conflict with those reflected in the rest of the mass media.

The available reports on the use of radio led to this summary.

The evidence is consistent enough for us to be able to conclude:

> Radio broadcasts do reach a rural audience which even in the poorest countries is likely to be 30 per cent or more.
>
> They are regarded by listeners as being an important source of agricultural information.
>
> Because they are so widespread they probably reach poorer families than are contacted by extension agents, and reach people who cannot read.
>
> Despite this knowledge about their reach, we know little about their effectiveness.

Rural newspapers

Rural newspapers of two kinds have been used to encourage and help rural development. Some have been centrally produced, usually by a ministry of education or of information, and distributed throughout a country or a region. Others have been village newspapers, produced in a village or a small town, and circulating only in a small area. Alongside such papers, a number of organisations produce magazines, often with a narrower focus of interest: Za Achikumbi in Malawi, or Agripromo in francophone west Africa, for example, are almost entirely concerned with agriculture.

The aims of rural newspapers (of the first kind) usually include the following:

1 to produce reading materials for new literates;

2 to ensure the continuing education of the rural masses; to give them practical advice on produce and civil rights and responsibilities;

3 to give the masses information about events concerning their environment, their region, their nation and the outside world at regular intervals;

4 to ensure a "dialogue" between the leaders and the rural masses;

5 to help ensure the participation of the rural masses in the economic, social and cultural development of the nation;

6 to proceed to set up a local, decentralised press and to show the rural masses how to express themselves in the press. *(Bhola 1980: 35)*

Rural newspapers have been extensively developed in francophone west Africa in recent years: Kibaru in Mali, for example, has been widely publicised. These papers generally contain materials of five kinds:

news – international, national and regional;

information – on agriculture, health or other developmental issues;

literature – stories, sometimes recorded from existing oral literature, history and poetry;

entertainment – which may include puzzles and riddles, sometimes contributed by readers;

a means for dialogue – between citizens and between citizens and the newspaper. This often involves including a readers' letters section in the paper.

An examination of the record led to this conclusion.

To sum up, we can assume that rural newspapers are of value in societies where new literates, and rural people generally, are short of printed material and value what is available. They can be set up and run on a modest scale, and can be used to carry information about agriculture or about the content of basic education more generally. There is little information available to assess their effectiveness

Following the review of the available evidence on outcomes, the paper reviewed the cost information which led to the conclusions referred to below.

Conclusions

Implications for policy

We look in turn at the general conclusions from this study, at its implications for basic education, for agricultural extension, and for costs.

General. Mass media have proved an effective way of teaching people who meet together in groups, in order to study material taught through broadcasts and print. The combination of mass media and group learning has been used for teaching the content of basic education, for teaching certain techniques, and for stimulating action within a community. The success of such methods depends on the existence of an organisation to support and encourage learning groups.

Either radio or printed materials can be effective in communicating information to individual learners, who are not organised into groups. It is reasonable to assume that they are less effective used in this way, but they are also much cheaper. Radio is a particularly cheap medium, in terms of cost per listener, in a number of developing countries, provided that the audience is large enough for the production and transmission costs to be spread widely. We know little about the limits to the effectiveness of mass media used in this way.

Under the right circumstances, mass media used with or without a group organisation, can reach a large proportion of adult populations, and can reach both women and other disadvantaged groups. Group organisations have, in Latin America, reached between 1 per cent and 5 per cent of rural adult populations each year. Radio broadcasts, even in countries where radio ownership is not yet universal, can reach 30 per cent or more of target, rural, audiences.

Correspondence education, has provided an effective method of teaching both basic and specialised subject matter. It can be assumed that it is more effective when linked with radio. The major problems which arise, as with other forms of part-time education for adults, concern retention and dropout rates.

Basic education. Mass media have proved more successful at levels above the most basic, less successful at teaching literacy or numeracy, even with some face-to-face support, to adults who have never been at school. (In this regard they are probably comparable to orthodox forms of education.) The radio schools of Latin America, for example, have had more success at such levels.

Of the separate components of basic education, mass media have been successful in developing skills in literacy and numeracy, in enabling people to benefit from change, and in increasing their efficiency in acquiring information. There is insufficient evidence to show how far they achieve broader goals.

Many mass media programmes have had relatively narrow aims, of teaching particular skills or methods, or about particular aspects of agriculture or health. A smaller number, mainly in Latin America, have attempted to go beyond this and teach a curriculum of basic education. We can infer, from both sets of experience, that as the methods can be effective for narrow objectives, so there is no reason to suppose they will not be effective for broader ones. What is lacking – for the radio campaigns of Tanzania for

example – is the idea of a curriculum, or the intention to relate together different elements of adult education so that the whole is greater than the sum of its parts.

Agricultural extension. Mass media, and especially radio, have demonstrated in a wide variety of countries, their ability to carry information to farmers about agriculture. Radio is often seen, by farmers, as an important source of agricultural information. It is also a very cheap way of communicating with farmers. Correspondence courses can teach farmers and it appears that farmers can introduce changes into their practice as a result of following such courses. Mobile cinema vans in at least two African countries appear to be successful in providing information to farmers. Where distance teaching techniques have been used, feedback from farmers to extension or education agencies is possible.

There is an unrealised potential in using mass media to support agricultural extension agents, and to train them in-service. Oddly, while this use of radio and print is so widespread for upgrading primary school teachers as to be almost the norm in many developing countries in Africa, it has been little used to upgrade extension agents. The experience of INADES-formation suggests that this may be an important future role for the mass media.

Generally, the evidence about the effectiveness, and about the costs, of using mass media for communicating agricultural information is such that its increased use may be of major importance as extension grapples with the problems of budget limits and of scaling up its level of activity.

Costs. The use of mass media, unsupported by a group activity in the field, is very cheap, especially when compared with the costs of face-to-face contact. Comparisons of effectiveness are more difficult. Existing data does not permit us to make a comparison between the effectiveness of, say, listening to a radio programme for an hour and talking with an extension agent for an hour. But evidence from Malawi suggests that the costs are in the ratio of 3000:1. Thus the cost for each contact between an agricultural extension agent and a farmer was between (1978) $15 and $21; in contrast the cost per farmer of attending a puppet play was about $0.08, of watching an agricultural film for an hour was $0.17, and of listening to an hour's agricultural radio programmes was $0.004. Costs obviously vary from place to place, but it seems likely that they are often of this order of modesty. Similarly, where the scale is large enough, printed materials can be very cheap: the 16-page Colombian magazine *El campesino* costs only $0.21.

The costs of teaching individuals with correspondence courses, either with or without radio support, depend so much on the numbers involved and the overall costs of the agencies running those courses, that few generalisations are possible. There are circumstances under which such teaching can be cheaper than alternatives. If it increases the effectiveness of, say, extension agents, the potential benefits may be very large indeed.

Where a group organisation exists to support learners, costs are, of course, much higher than they are for mass media alone. Radio campaigns, reaching audiences of about 2 million, for a period of two to three months, probably had costs of between $1 and $5 per participant. Radio schools in Latin America, with audiences of between 20,000 and 200,000, can teach the equivalent of a primary school curriculum for between $30 and $65 a year. (In both cases the opportunity cost of the participants' time is not included.)

While these audiences are far smaller than those for the Tanzanian campaigns, they are nevertheless significant. If a radio school, or something like it, recruits 2½ per cent of the rural adult population in a year, then, over twenty years it may have taught a quarter or a third of all the adults in a country. The costs for such an achievement can be modest. If the annual cost is of the order of $50 per participant, then one could reach 1½ per cent of the population each year for $0.625 per head of the population. Expressed as a percentage of gnp per head, this would mean the devotion of the following resources:

gnp of	$180 (e.g. India)	0.35%
	$400 (e.g. Ghana)	0.16%
	$600 (e.g. Papua New Guinea)	0.10%

The case for educating adults cannot rest on that sort of arithmetic, involving, as it does, huge assumptions and uncertainties. But the evidence suggests that a case can sometimes be made for investment in well-designed multi-media educational projects for adults.

Implications for research

In assessing the value of mass media, we are hampered by the shortage of comparable data on the effectiveness of orthodox methods of education and especially extension. Despite the level of government, and international, investment in agricultural extension services, there is little data which shows how valuable extension services are in raising productivity. Along with further research and experiment on the use of mass media, which is discussed below, we therefore need more on orthodox extension, and its costs and effects.

Considerable further research is needed about the ways in which mass media, and especially radio, can best support the work of agricultural extension. The need is not for further general surveys, but for case studies and field experiments. One part of this work should be a study of farm forums, which have existed for over 40 years, despite wide scepticism about their value, and of which there is apparently only a single cost study.

There is scope for a guide to practice in the use of mass media for rural education. Existing documents, such as the educational use of mass media (Futagami et al. 1981), do not meet this demand.

This paper has concentrated on basic education and agriculture. There is considerable, but scattered, third world experience on the use of similar methods for health, nutrition and family planning and a similar survey could usefully be undertaken.

If basic education for adults is to be effective, it needs a curriculum, based on their interests and experience, rather than being a shadow of children's primary school curriculum. Further research is needed on the ways of devising and implementing such a curriculum.

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12 The cost effectiveness of distance education for primary teacher training

This paper was commissioned by the Asian Development Bank with the Commonwealth of Learning as an input to a regional seminar on distance education for primary school teachers, held in Bangkok on 21-24 October 1996. The seminar focused on the needs of the nine high population countries in the developing world (Bangladesh, Brazil, Egypt, China, India, Indonesia, Mexico, Nigeria and Pakistan) and was attended by participants from the five Asian countries and from Brazil and Mexico. This extract from the paper sets out what can be learned from comparative studies, looks at the actual costs achieved in distance-education programmes, and discusses the policy issues in planning teacher education at a distance, identifying the key variables affecting its costs.[50]

The purpose of this paper is to help decision-makers who are considering or planning the use of distance education for teacher training by summarising evidence on its cost effectiveness and showing how this can be calculated. In order to do this we examine in turn the nature and purpose of teacher training and the evidence on costs.[51]

The context

If teachers are to be more than custodians, and to do more than teach as they were themselves taught, they need to follow an appropriate programme of teacher education or training.[52] A recent American review suggests that this should comprise:

> a broad grounding in the liberal arts and sciences; knowledge of the subjects to be taught, of the skills to be developed, and of the curricular arrangements and materials that organise and embody that content; knowledge of general and subject-specific methods for teaching and for evaluating student learning; [and] knowledge of students and human development. *(quoted in Lockheed and Verspoor 1991: 90)*

The emphasis given to different elements in a programme of teacher training varies widely. Where trainees' basic education is limited, the main emphasis may be on their general education while a programme of inservice education may concentrate on the skills needed to manage a classroom or a school or on the teaching of a particular subject. Five areas of teaching competence were identified in the plans for a Postgraduate Certificate in Education recently introduced at the British Open University:

curriculum/subject planning and evaluation;

classroom/subject methods;

classroom management;

assessment, recording and reporting; and

the wider role of the teacher.*(Moon and Mayes 1995: 99)*

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[50] The paper was published in Asian Development Bank (1997) *Distance education for primary school teachers*, Manila

[51] The original version of the paper also included a section on the methodology of costing.

[52] Following convention the term 'teacher training' is used even though many educators dislike the narrowness implied by the word 'training'. It may often be read as 'teacher education and training'.

In this case the trainees were already graduates so that it was not necessary to see the raising of their general education as a priority. In contrast a programme for teachers run by the University of Nairobi some 25 years ago was deliberately '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' (Hawkridge et al. 1982: 181).

The more imaginative programmes of teacher education have tried to integrate their various elements and, in particular, to avoid a dichotomy between theory and practice. Most have, in different proportions, sought to provide elements of general education, teaching about the subject matter trainees will teach in the classroom, and both theoretical and practical teaching in pedagogy and education.

Balancing the elements in a teacher-training programme

Decisions about the balance between its different elements are critical in planning a programme of teacher training through distance education. The purpose of the programme, and the background of the students, will affect the weight to be given to the different elements identified above. In many cases, planners have seen training in the skills of teaching, that are practised in the classroom, as an essential part of their programme of teacher training. These skills, that are likely to embrace some questions of subject methods, of assessment, and of management, as well as general classroom methods, probably need to be acquired in the classroom. And so these facets of teacher training present different logistical demands from those of teaching the more academic elements of teacher training. Trainees need to get to the classroom, if they are not already working there, and their tutors need to visit them while they are there.

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 in some countries. Where communications make this possible, tutors from students' college or university can visit them in the field. The recent British postgraduate certificate course, already referred to, has taken a radically different approach. It has centred the course around activity in the trainee's own school. The schools participating in the scheme appoint a member of staff as a mentor, who is briefed, supported and paid by the university.

In seeking a balance between general and specific education, pedagogy and classroom practice we need to recognise 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: 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.

Audiences and purposes

Distance-education programmes have been used to train teachers with differing backgrounds, at a variety of different levels and for different purposes. 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.

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.

More often, programmes have been run for the initial training of teachers who are already in service, and therefore experienced. Experience of this kind of programme goes back more than 30 years. Soon after independence, for example, Francistown Teacher Training College ran such a programme in Botswana while a programme in Brazil, Logos II, has addressed a comparable audience since the 1970s. At secondary level, the Open University in Sri Lanka teaches experienced teachers who lack a teaching qualification. There is considerable experience in industrialised countries of offering BEd. and MEd. programmes for teachers in secondary and tertiary education. Increasingly, too, distance education is being used for specific groups, and specific purposes, within the education service. The government of Trinidad and Tobago, for example, is considering the introduction of a BEd. programme for head teachers which concentrates on educational management.

At least as important as the level of education for which distance-education programmes have been designed is the educational background of the students themselves. Some programmes have been aimed at students whose own education is limited to primary schooling with, no more than three years of secondary schooling. Countries that have achieved universal primary, or junior secondary, education are likely to demand a higher entry standard for those embarking on teacher training, whether through distance education or conventionally. The students' background is likely to affect the balance between the different elements in the programme and, in particular, the extent to which the content is essentially one of general education or one more specifically addressed to the needs of the classroom teacher.

Methods

Programmes have varied in their choice of media. Most 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 early programmes set up in various African countries in the 1960s, and planned even before independence, through the work of the Allama Iqbal Open University in its Primary Teachers' Orientation Course, to 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 so that broadcasts continue to support both specialised and general courses. But some 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 which was set up to offer distance-education programmes (Young et al. 1980: 30). In contrast, an early programme of teacher education in Indonesia found that it was possible to use radio effectively even before the logistical problems of distributing printed materials had been resolved (Setijadi 1987: 114).

Many programme have included elements of face-to-face support and provided for the supervision of teaching practice as well as expecting students to work literally at a distance. Large-scale programmes in Tanzania and Zimbabwe, for example, 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 trainee science teachers on Saturdays in university or school laboratories (Brophy and Dalgety 1980). In many, though not all, cases programmes have arranged for the supervision of trainees' classroom practice.

The choice of media is affected both by the available technology and by the purpose of the programme. Where programmes are intended to change classroom practice or teachers' attitudes, they are likely to emphasise practical classroom work and its supervision: their quality and effectiveness will be affected by the arrangements made to organise and supervise this component. A programme with more restricted aims, such as raising the basic educational level of the students, may require less in the way of supervised classroom work and face-to-face support. Decisions about media also have, of course, an important bearing on the cost of a programme. Some media have higher production costs than others: television is, for example, almost always more costly per hour than radio. Different media may affect the distribution of responsibility for meeting costs: if students are required to buy a cassette player, or to meet the costs of printing materials that are distributed through a computer network, this may reduce expenditure on the part of the teaching organisation but increase the cost falling on the student. Even more important there are critical differences between the behaviour of the costs of different media. The most significant of these differences, to which we return

below, is between the costs for face-to-face support and for classroom practice, which vary with the number of students, and the costs of developing educational materials which are unaffected by student numbers.

Cost studies

Questions of cost are almost always relevant to planning. There may, sometimes, be a case for using distance education which has at first sight little to do with its costs: to reach students in a distant part of the country, or to avoid taking them out of the workforce, or in the interests of equity. But the planner will always want to know what resources are necessary to run a programme and, most often, to compare the costs of alternative approaches. Even in the three cases suggested it makes sense to ask about the costs and about the comparative cost of the alternatives.

Three types of study can be distinguished. The term 'cost analysis' is used to refer to any study which analyses the costs of an activity and so makes planning decisions easier or more rational. Cost analysis is a first stage in any economic analysis but is also a valuable management tool. 'Cost-effectiveness studies', in contrast, always include a comparative element: they answer the question 'how does the cost of achieving a given effect compare with the cost of alternatives?'. Much of this paper is concerned with cost effectiveness examining the strengths and weaknesses of distance education in order to achieve comparable effects, in terms of training teachers, with alternative methods. Studies of cost effectiveness do not require us to put a monetary value on the effects but simply to express them in a way that makes comparison with alternatives possible. 'Cost-benefit studies' put monetary values on both the inputs and the outputs of an activity: they require us to find a value in money for the effect obtained. In education, for example, a cost-benefit study might try to find a value for the output of a particular course by examining the increased earnings commanded by students who had followed the course.

This paper does not examine cost benefit further. Its starting point is that educators are convinced that there are benefits to society of raising the quality of teacher training. We will, however, need to keep in mind one of the questions posed by cost-benefit analysis and ask how we can be assured that the outcomes of the courses and programmes examined do in fact produce benefits. Thus, even while we stop at cost effectiveness, we will need to be assured that the effects produced by programmes of distance education are comparable to those produced by conventional training programmes.

Comparative studies and their limitations

The pattern of expenditure for distance education differs from that for conventional education, with different relationships between fixed and variable costs. In conventional education, staff costs are generally the largest single item in a budget, sometimes exceeding 90 per cent of the total. Staff costs therefore tend to vary with the number of students and education is a labour-intensive activity. While it is possible to hold down unit costs by putting more children into a classroom, or operating a two-shift system, there are limits even to these measures and the relationship between student numbers and costs remains generally close. In distance education, teaching can be recorded in advance, reproduced, and distributed to large numbers of students. While significant costs have to be incurred in developing the teaching materials, the costs of teaching one

additional student may be modest. Distance education is thus more capital intensive than conventional education with higher fixed costs, mainly for the development and production of teaching materials, and lower variable costs as fewer teaching hours are devoted to the teaching of each student or group of students. Within distance education it is therefore possible to expect some economies of scale and for the cost per student to drop as the number of students increases.

If we want to compare the costs of conventional and distance education, or look at the consequences of expanding or contracting a programme, we cannot therefore simply take annual expenditure for two modes of study and divide it by the number of students. (In any one year a significant proportion of the costs of distance education may be for the development of teaching materials that are used over a n umber of years.) Techniques of analysis, based on classical microeconomics, have been developed and applied to a number of programmes of distance education to compare its effects with those of conventional education. Studies have generally used one of two approaches here. A number of studies, particularly those produced in the late 1970s and early 1980s, have analysed the cost per hour of study for different modes of education. An overview of *The costs of educational media*, for example, concludes by summarising evidence on the costs per student hour of radio and television (Jamison, Klees and Wells 1978: 240-2). More recently studies have tended to look instead at the comparative costs of following a particular course or obtaining a particular qualification through different methods of study.

The available comparative studies make it possible to reach some conclusions about the circumstances in which distance education is at an advantage or disadvantage as compared with alternatives. Many of these have followed a standard methodology. In order to put them in context, however, we need to consider their limitations. A review of the evidence, concentrating on higher education but looking at some of the teacher education studies, noted that the limitations of the data were both practical and conceptual.

> The quality of the data is varied: individuals and institutions have undertaken costings for a variety of purposes and using a variety of techniques. In particular, while post-hoc costings done in the interest of economic analysis have often included an examination of the costs of capital, institutional studies have often looked only at recurrent costs. Similarly, analysis of the costs of conventional education varies in its sophistication. *(Perraton 1994: 20)*

Comparisons are also difficult because institutions differ widely. There is no one form of distance-teaching institution and different institutions use different mixes of teaching methods. As the cost of a distance-teaching programme is, in part, a function of its choice of teaching media, so it may be misleading to lump together evidence from different teaching systems. Nor can we assume a simple relation between cost and technological simplicity: the National Technological University [of the United States] may have costs that compare favourably with alternatives, especially if opportunity costs are taken into account, despite its reliance on satellite technology (cf. Bih-jen Fwu et al. 1992). Conventional institutions also differ widely in the balance of subjects taught and the comparative emphasis they give to teaching and research. These factors can make a major difference to the cost per student: if half an academic staff member's time is devoted to research then it is illegitimate to attribute all that time to teaching in any attempt to define a cost per student. For their part open

universities may make quite different assumptions about their staff members' duties than some conventional universities. Staff at Universitas Terbuka in Indonesia, for example have administrative responsibilities that effectively prevent their undertaking research (Djalil et al. 1994: 35).

Even where information is available there are difficulties in comparing costs and effects. We rarely have matched groups of students studying at a distance and conventionally and cannot easily disentangle effects to be attributed to the method of study from effects due to differences between the audiences. Nor can we always match institutions. While on the face of it we should compare the work of an open university, say, with a conventional university, the balance of their work may be quite different. Until 1993, for example, the Indira Gandhi National Open University had awarded 14,328 qualifications but only 1,290 or 9 per cent of these were bachelor's or master's degrees. (Kulandai Swamy and Pillai 1994: 73). It would not be fully appropriate to compare its costs with those of a university whose main activity was to produce graduates with bachelor's degrees.

One further practical weakness of the data is that few studies have quoted graduation rates. British Open University data are available. A number of Australian studies (Sheath 1965:44; Jevons 1982:127; Hudson Report 1986: 96-7) quote graduation rates between 33 per cent and 69 per cent. Apart from some studies of teacher training we have few other graduation rates (Perraton 1994: 20-1).

We need, therefore, to be careful in interpreting the evidence on cost and not drive our conclusions further than the data will legitimately take us. In doing so we need, too, to be sensitive to questions about who is meeting the cost. Some costs fall upon governments or training institutions; others on students and the success or failure of a programme can depend upon the realism of assumptions about who can pay for what.

Costs and outcomes

The evidence from cost-effectiveness studies allows us to draw two kinds of conclusions about the costs of distance-education programmes for teacher training: about the comparative cost of distance and conventional education and about the key variables that influence this cost. Table 12.1 sets out data on a number of programmes of teacher education. It also includes figures for some programmes of higher education; for the most part these relate to institutions which had teacher training as one of a number of functions. All the data reported come from studies which appeared to have followed standard techniques of microeconomic analysis and to be robust enough for one to have confidence in the conclusions.[53]

In interpreting the cost data it is important to distinguish between cost per student and cost per graduate. A number of studies, especially of open universities, have shown figures for costs per student but without examining graduation rates. As a result while it is possible to compare the cost per student with that of conventional education it is not possible to answer

[53] The original version of the paper noted that it had not been possible to locate further figures as robust as those quoted. While other studies have since become available, and actual costs have changed with inflation, the comparative costs, and conclusions drawn from them, are still relevant to planning.

questions about the comparative cost of producing a graduate or of successfully completing a course. Our main concern in this paper is with the cost of successfully completing a course.

We can then draw six conclusions from the figures and from the studies on which they are based.

The first is that there are circumstances in which distance education is at an economic advantage as compared with conventional education. Where it has been possible to measure effectiveness, teacher training at a distance can be effective and its costs often tend to be lower than those of conventional education. From the available data it is reasonable to conclude that distance-education programmes can be designed for teachers which will cost between one-third and two-thirds of conventional programmes. To some extent, in Pakistan or Tanzania for example, this is because they have operated at a large scale and often achieved high successful completion rates. Typically these were programmes in which successful completion guaranteed more pay. High completion rates narrowed the gap between the cost per student and the cost per graduate.

This finding is consistent with other reported data. In China, for example, where only limited data were available for a comparison between the cost of the Radio and Television Universities and others, Wei and Tong (1994: 98) suggested that the RTVU system was probably 'saving a third of the cost of producing a conventional graduate'. Although he used a somewhat different methodology, the findings are consistent with a review of teacher upgrading through distance education in southern Africa (Taylor 1983: 30). In Britain there is as yet no cost study of the Open University's Postgraduate Certificate in Education but its costs are understood to be about half of those of the conventional alternative.[54]

Thus, in a number of the cases where reliable data are available, distance education has been shown to achieve the economies of scale that allow the cost per student to fall below that of alternatives.

The second conclusion is that some distance-education projects were probably too small to show economies of scale. Three of the projects shown in table 12.1 (the project in Kenya, the University of Lagos COSIT programme, and the project in Uganda) did not show dramatic economies as compared with conventional programmes of teacher education. Indeed, it was probably more costly to produce examination passes through an earlier school-level programme in Kenya than it was in regular schools although the programme was seen as having the benefit of reaching remote teachers who could not be taken out of the classroom for full-time education. These four projects had enrolments in the range 500 to 3,000. In contrast, the comparative costs of a number of larger distance-education programmes have been much more favourable.

Third, one of the major economic advantages of using distance education is that it does not demand full-time residence or attendance at a college over a number of years. This means that a distance-education programme is likely to result in a number of different savings in public expenditure, including the cost of providing residential colleges and, in some jurisdictions, of paying students a maintenance allowance while they are at

[54] Cost data are now available and are published in Walker 2007. It emerged that the British course was funded by government on the same basis as conventional teacher training courses so that the cost per student could be expected to be much the same.

college. Students in Ghana, for example, receive a living allowance if they attend university to follow a BEd. course but do not get an allowance if they are following a parallel distance-education course. The cost of student residence is reduced when students attend a college for face-to-face sessions only occasionally, or for shorter periods than in conventional full-time programmes, and colleges are therefore used more intensively.

The savings in the cost of residence, and the economies of scale made possible through the use of communication media, have brought the unit costs of many distance-education programmes below those of alternatives. But, fourth, there are tight limits to the savings that can be expected through the expansion of distance-education programmes where these have a significant pedagogical content focused on classroom teaching. Where extensive support is provided to students, or arrangements made for thorough supervision of their teaching practice, the variable cost of programmes is relatively high; supervision and support costs necessarily rise in proportion to the number of students so that economies of scale are not possible for this element of the programme.

Fifth, the comparison between the costs of distance and conventional education in part reflects the high cost of conventional methods of teacher education. Lockheed and Verspoor (1991: 96), in commenting on the high cost of much teacher education, have suggested that where its content is much the same as that of secondary education, so that the work of teacher-training institutions is largely remedial, it would be cheaper to provide that education through secondary schools which usually have far lower unit costs than teachers' colleges. (There are marked national differences here with the annual cost of teacher training standing at 1.10 and 1.64 times the cost of secondary education in Indonesia and Bangladesh respectively but at 8.51 in China and 25.53 times in Pakistan (ibid.: 97).) Teacher education is also relatively costly where it includes the teaching and supervision of classroom practice. The Tanzania teacher training scheme is a striking example of these two points; its costs look dramatically high for a low-income country and demonstrate both the high degree of face-to-face supervision provided to the distance-education students and the high cost of conventional teachers' colleges.

Sixth, there are considerable opportunity costs for students in undertaking part-time study. Some of the costs are social: students spending less time with their children, their spouses or their friends. Some, easier to quantify, are financial. While economists can estimate a shadow cost for students' time, teachers doing a part-time degree in both Kenya and Nigeria reported that they were using time that they could otherwise have spent doing private, paid, tuition (Perraton 1993: 288).

The opportunity costs of various modes of study may fall on students or their employers. One of the attractions for employers of the National Technological University, which feeds teaching into its students' work places, is that it cuts the opportunity cost of attending campus by eliminating travelling time. The conclusion is that, if we want to undertake cost-effectiveness analysis of distance education, we need to consider the value of students' time and to ask who is paying for that time. Comparisons between the cost effectiveness of distance and conventional education may turn on just this issue. Policy decisions may turn on the question of who pays the opportunity cost.

Table 12.1: Some costs and success rates for teachers and tertiary level distance education

	GNP per Capita 1992US$	*Approx annual enrolment*	*Cost per student per annum*	*1992US$ per graduate or successful completer*[a]	*Measure of success*		*Comparison between distance and conventional education*
					Measure used	*rate %*	
Australia: Deakin University 1989[b]	17,483		2,614[c]				Cost per student 97.5% of cost of on-campus student
Australia: 8 Distance Education Centres 1990[d]	17,483	2,750-9,125[e]		4,417-6,735			Recurrent cost per external student 10% lower than internal
Britain: Open University 1989[f]	17,790	25,000	2,342	15,834 ord BA 22,160 hons BA			Cost per graduate lower than cost at conventional university[g]
Costa Rica: Universidad Estatal a Distancia 1980[h]	1,960	8,150	1,276				Cost per student lower than at conventional university; cost per credit comparable with larger conventional universities
India: Indira Gandhi National Open University 1991/2[i]	310	52,000	116		Graduation rate		Cost per student between 8% and 40% of cost at conventional universities but comparable performance rates of latter are in range 55-50%
Indonesia: Open University teacher training 1988/9[j]	670	5,000	678				Cost about 60% of conventional course
Japan: University of the Air 1989/92[k]	28,190	3,600	2,101	23,233			Cost per graduate lower than at university but higher than correspondence or private programme
Kenya: University of Nairobi BEd.[j]	310	151	923				Cost thought to be lower than cost of full-time equivalent
Nigeria: University of Lagos COSIT 1988[j]	320	2,000	294[c]				Cost slightly lower than cost on campus
Pakistan: Allama Iqbal Open University Primary Teachers	420	8,360		91-125	Successful completion rate	37.9	Cost per AIOU graduate 45-70% of conventional

Orientation Course 1976/86[j]							
Sri Lanka: National Institute of Education 1974/88[j]	540	5,000	98				Cost 1/6 to 1/3 of alternative
Tanzania: Teacher training at a distance 1979/84[j]	110	15,000	1,569	6,161	Successful completion rate	93	Cost about half conventional education
Uganda: Mubende Integrated Teacher Education 1991/95[l]	170	900[m]	521	6,162	Successful completion rate	34	Cost 17% higher than for conventional institutions
USA: National Technological University 1989/90[n]	23,240	3,640	3,366		Course completion rate	85	Breakeven point at enrolment 9,000 students on 200 courses

Notes

a *Costs based on those in Perraton (1994) where they were in constant 1988 US$ generally converted by using the exchange rate into $ for the year being reported and then converted to 1988 $. Costs now converted to 1992 $, using the USA GDP deflator shown in the World Bank World Tables*

b *Deakin University (1989)*

c *Recurrent costs only for full-time student equivalent*

d *Harman (1991). Enrolment and cost figures are for full-time student units; for conversion purposes they are treated as 1989 data.*

e *Figures appear to be total full-time student equivalents, not annual*

f *Open University (1991)*

g *Horlock (1984) calculates cost at 62% cost arts degree at conventional university with OU graduation rate of 57%. His calculations give a cost per graduate in 1981/2 of 1992 $17,729*

h *Perraton (1982a) 30-1 where fuller references are cited*

i *Ansari (1994) taking his reference to performance as a graduation rate, and Kulandai Swamy and Pillai (1994)*

j *Perraton (1993) 386-7*

k *Rumble (1992(and Muta and Sakomoto (1989), taking their figures as in 1985 currency*

l *Robinson and Murphy (1996). I am indebted to Mr Murphy for permission to quote from this draft study. These costs converted from 1994 to 1992 US $ using US CPI index*

m *Total enrolment for the single cohort of students over a three year period was 900.*

n *Bih-jen Fwu et al. (1992). The cost per student is for a three-unit courses, apparently stated in 1989 $ in original.*

To sum up, the cost evidence is consistent in showing that students can obtain teaching qualifications through distance education at costs that compare favourably with alternatives. They will not always do so, and in interpreting the data, we need also to consider the opportunity cost of study and the question of who is meeting this cost. Furthermore, while it is legitimate to compare the costs of obtaining the same qualification through different kinds of programme, in a thorough evaluation we would also need to ask how far there are differences in the way teachers perform in the classroom which relate to the ways they have been trained. Few studies have examined this.

The quality cost trade-off

The discussion so far has put together evidence from both preservice and inservice teacher training. This seems legitimate as the conclusions appear to be common to both forms of training. It has, in fact, been suggested that the division between the two is becoming arbitrary as 'what is pre-service for some [colleges] may be in-service in others. For there is an increasing tendency to draw college entrants from the ranks of the large pool of untrained teachers since at least these have showed themselves ready and willing to enter the classroom' (Hawes and Stephens 1990: 106). Nor do we examine further, here, the economic case for greater or lesser investment in preservice and inservice training respectively. But while pursuing cost effectiveness, we do need to consider ways of maximising educational quality.

The quality and effectiveness of teacher training has been widely criticised and at best it seems that

> the relationships between teacher training and pupil achievement are 'complex'. Emerging from the research we may ask two important questions:
>
> If training does make a difference generally, why are there significant examples of countries in which teacher education seems to have little effect 'at the chalk face'?
>
> Is there therefore an important distinction to be made between good teacher training and poor tertiary level education, masquerading as pre-service instruction? *(ibid.: 102)*

Studies in many parts of the world have identified the difficulties faced by teachers' colleges. In Pakistan, for example, researchers identified critical difficulties as the poor quality of the intake to colleges, lack of motivation among the staff, the abstract nature of the curriculum and a system of evaluation that encouraged rote learning (Avalos 1993: 75). At the same time distance-education programmes have been widely criticised for their educational weaknesses. In many programmes dropout rates have been much higher than they are in conventional education. As distance-education students are forced to rely on pre-prepared teaching materials there is a danger here, too, that learning will lapse into rote memorisation. We have little positive evidence, from the small number of cases where the question has been examined, of the effectiveness of distance education in changing teachers' attitudes (cf. Nielsen and Tatto 1993: 123). In planning a distance-education programme we need, then, to overcome the problems that have marked both teacher training and distance education.

Four features of effective programmes

We can identify four features that are likely to mark successful programmes and consider their cost implications. At the same time we need to recognise that some of the measures needed for effectiveness lie outside the limits of pedagogical design: programmes are likely to be more effective if trainees are highly motivated, if they are drawn from a pool of well-educated entrants, if the teaching profession is one that commands general, better still increasing, public esteem.

First, we noted above the need to seek a balance between the various different elements in teacher training. A consistent criticism has been 'the lack of integration and balance between theory and practice in teacher training' (Dove 1986: 248) while 'only too frequently the Principles of Education are taught in a .... way amounting to indoctrination. The only saving feature is that they are often confusing and meaningless to trainees' (ibid.: 249). The necessary links between general or subject-specific education on the one hand and teaching skills on the other are often not in place. In some cases one element of a course fails to reinforce another: one study found that course materials stressed informal classroom methodologies while the tutors in Saturday sessions taught their trainees in serried rows of desks (Bako and Rumble 1993: 221). The first feature we should look for, therefore, is a carefully worked out integration between the various elements in a curriculum. This requires a structure which establishes the links between the various elements of the course, possibly in terms of the competencies to be achieved by students, and the teaching methodologies to be used.

Second, an essential part of that framework is teaching practice. 'Unfortunately, though teaching practice is a co mmon feature of teacher training, it is frequently poorly conceived, inadequately organised and under-resourced' (Dove 1986: 251). It has faced particular difficulties in large, national, programmes of teacher training through distance education where the administrative demands of organising the supervision of classroom practice overwhelmed good intentions (cf. Chivore 1993: 59; Perraton 1993: 398). If a distance-education programme is to affect the classroom practice of teachers it seems inescapable that teaching practice needs to be a key component, despite all the complexities of management and administration that this brings in its train. There are a number of different ways in which this can be organised: college of education staff and district education staff have been employed in some programmes to supervise teaching practice. A British programme, and an Albanian one modelled on it, have recruited mentors in school, built the programme around the link between them and the trainee teachers, and provided for the supervision of classroom practice in this way (Moon and Mayes 1995). The costs vary with the approach adopted as may their location, with differing answers to the question, 'who pays for this element?'

Third, assessment always affects teaching. Just as teachers are tempted to teach mainly in order to get their students through the target examination so they themselves will be affected by the rewards that follow from their own assessment and by the features in their activity that get the greatest reward. If a balanced curriculum and the importance of teaching practice are to be stressed, these elements must carry weight in any system of assessment.

Fourth, those working in distance education argue that programmes that use a combination of media are likely to be more successful than those using a single

medium. The strengths of the different media can then complement each other; where there are difficulties in using one medium another may compensate; if personality differences mean that there are differences in the ease with which people learn from a particular medium, there are advantages in offering a combination of media (cf. Moore and Kearsley 1996: 69; Bates 1982: 308). We may therefore expect that while a distance-education programme that uses a variety of media will have higher costs per student than one that uses mainly or exclusively a single medium, it will be at an educational advantage because of the variety.

These features are not, of course, the only ones to affect success. General principles of good planning, the use of a systems approach to the design of an educational project, the achievement of an effective management system, for example, will all have a bearing on the success of a programme of teacher education. But these four seem, from the literature, to be of critical importance. All four have management and cost implications.

Implications for management, cost and funding

The main management implication is that all four require some emphasis on the management of the educational service at a local level. Local involvement is necessary in the management of teaching practice and of assessment if this is to relate to teaching practice. Given the centrality of these issues, such involvement then needs to extend back into the design of a programme and, to ensure a measure of realism, to affect decisions about educational media.

The cost implications are simple: all four features are likely to increase rather than reduce the cost of a programme. As we have seen teaching practice does not allow the economies of scale that are available for some elements of teacher training through distance education. If assessment is to be local, then it, too, will have high variable costs. As there are costs associated with each teaching medium so we can expect costs to rise with each extra medium used.

If, however, we shift our focus from overall costs to unit costs and to effectiveness the picture changes. We would expect that, as we increase student support, so the satisfactory completion rate will rise. There is both theoretical and practical evidence to suggest the importance of linking learning from mass media with some opportunities for face-to-face discussion which reinforces our arguments for linking face-to-face contact in relation to classroom practice with learning from the media (Katz and Lazarsfeld 1964). It is also likely that courses using several media have a higher satisfactory completion rate than those that rely on a single medium. We would, too, expect programmes than included a significant element of classroom practice to have a greater effect on teacher and student performance. Thus, while at least three of the measures proposed are likely to increase overall costs and cost per student, they may at the same time reduce the cost per successful student and achieve a greater improvement in classroom performance for each dollar spent.

If, within a fixed budget, we are to find resources for the critical elements of student support and the supervision of classroom practice, which do not allow economies of scale, and to run a programme whose costs do not exceed those of conventional alternatives, we need, as suggested above to consider critically the media used and the size of the audience. In doing so, too, we will need to make use of a cost function that

looks at the relationships between total, fixed and variable costs. In considering radio education one review, whose findings apply as well to distance education, concluded:

> Two essential conditions must exist if radio education is to be less expensive than traditional education.
>
> Staff costs must clearly be lower than those in traditional education systems. This implies at least that the number of hours spent by students and teachers should be greatly reduced...
>
> A sufficient number of students must be recruited to benefit fully from the economies of scale resulting from the use of modern technology ... it should be noted that the only clear example of a multi-media system whose cost is significantly less than that of a traditional system is the Open University where the principal technique ... is print. *(Eicher 1980: 14)*

It is unrealistic to consider costs separately from funding. Funds for teacher education have usually come from one or more of three sources: regular government budgets at central regional or local level; funding agencies including the development banks; and student fees. Recurrent costs have usually fallen on government budgets and on student fees, Whether or not fees are charged, some costs are likely to fall on the student. In addition to any direct costs, for travel or books for example, students are likely to have opportunity costs. Where trainee teachers are in service, policy on funding a training programme will need to take into account their salary costs, the extent to which training will take them away from the classroom, and the eventual effect on salary budgets if they get increased pay on completion.

Policy on student fees has varied. Many programmes of teacher education have charged no fees; indeed, some have paid allowances. There are, however, examples of programmes funded in part by fees; this was the case for teacher upgrading programmes in Indonesia and Sri Lanka. Where teachers are following a degree course from an open university, they have generally been charged fees. Current orthodoxy is to press for the use of fees to recover some of the cost of tertiary education (cf. World Bank 1995: 72). If fees are charged, the level at which they are set may determine the extent to which a programme can be expanded. If fees are calculated so that they cover all the variable costs of a programme, leaving some or all of the fixed costs to be found from other revenue, then there is no cost limit on the expansion of a programme. Where fees meet only some of the variable costs, then the total cost of a programme is at least in part a function of student numbers.

This is, however, a double-edged sword. In Indonesia it was found 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' (Nielsen and Tatto 1993: 129). Furthermore, where an open university derives a high proportion of its income from student fees it is under pressure from those students to keep fees as low as possible. This in turn encourages the university to hold down its expenditure on the labour-intensive activities of student support, even though these are the very activities that may raise its success rates.[55] The desirability, and realism, of

[55] A point made to the author by the late G. Ram Reddy, founding Vice-Chancellor of the Indira Gandhi National Open University.

charging student fees will vary so much from one jurisdiction to another that the analysis is not carried further.

To sum up, the quality of a distance-education programme is likely to depend on a balance between its different elements, on arrangements for teaching practice and its assessment where it forms part of the curriculum, an appropriate system of assessment for trainees, and the use of a combination of teaching media. A careful analysis of the costs of different media, in relation to the size of the audience, is necessary for effective planning. Policy questions will need to be answered about who is meeting the costs or how they are to be shared between the various parties.

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13 Quality and standards in teacher training by open and distance learning

This paper was delivered to a Pan-African Dialogue on inservice teacher training by open and distance learning, organised by the Commonwealth of Learning in Namibia in July 2001. The timing meant that it was possible to draw on work undertaken for the World Conference on Education for All held in Dakar the previous year. The argument complements that in Paper 11 but concentrates on the, necessarily contested, concept of quality in teacher education rather than on its costs.[56]

I have been given a slippery concept that has been baffling philosophers for millennia – quality in education. So my starting point is that, as the purposes of education are contested, so our ideas about quality are necessarily contested.

Education is contested

Look, for example, at the different emphases given in an international handful of recent statements about teacher education.

One recent international overview found that the reforms in teacher education in three continents 'stem from the global imperative of being able to compete successfully in world markets' (Elliott 1999: 135). Here in Namibia 'teacher education is seen as the key site for breaking the cycle of authoritarianism and inequities that existed in school prior to independence' (Zeichner 1999: xv). In Malaysia the priority in 1988 was interpreted in terms of developing individual potential 'to produce individuals who are intellectually, spiritually, emotionally and physically harmonious, based on a firm belief in and devotion to God' (Ratnavadivel 1999: 197). By 1997 Malaysia wanted as well to transform school culture so that it is 'informed, thinking, creative and caring' through leading edge technology (ibid.: 203). In India today 'each person can trace contribution of some teacher who helped that person to transform into a good human being with a more positive self-image, more self-confidence, more commitment and motivation to pursue excellence. This role of a teacher is universally acknowledged' (National Council for Teacher Education 2001). But rhetoric and reality about teachers' roles do not always match. In the Escuela Nova project in Colombia it is claimed that 'the teacher actually plays the role always recommended … but never put into practice, namely the role of a guide who facilitates the learning process for the learner' (Schiefelbein quoted in Tatto 1997: 409) In different places we have got economics, social transformation, personal development, religion, technology, ethics, and a shift in the teacher's own role, all among the aims of teacher education. So we are not going to have a single, simple, method of assessing educational quality.

Similarly, at different times and even within a single country, we can distinguish different traditions of teacher education and assumptions about its goals (Liston and Zeichner 1991). As set out in table 13.1, for example, an analysis of American experience identified four reform traditions. In the academic tradition it was argued that

[56] Perraton, H. (2001) 'Quality and standards of INSET teacher training by open and distance learning', Paper for *Pan-African Dialogue on inservice teacher training by open and distance learning*, Windhoek, 9-12 July

to get effective teachers their own general education mattered most and that, following a sound liberal-arts education, they should learn much of what they needed to know on the job. In an alternative tradition of social efficiency, emphasis was laid on their competency in a quest for performance-based teacher education. The developmentalist tradition led to a child-centred approach, with a concern for the stages of development of the individual child. Finally, within a tradition of social reconstruction, teacher educators were looking for potential teachers who would want to be socially engaged reflective practitioners. We can hear the echoes of similar debates today in many other parts of the world.

Our debate about the purposes of teacher education, and therefore about ways of assessing it, is central to issues of quality. On the one hand, it has been widely argued that much teacher education has been irrelevant to the practical needs of classroom teachers and that what is important is to develop defined competencies. On the other, this approach, falling within the social efficiency tradition in that set of categories, has been criticised as a behaviourist narrowing down of the complexities of teaching which takes inadequate account of the complexities of teaching or of the need to develop teachers' individual capacity and professionalism. In Britain, for example

> the Teacher Training Agency has taken responsibility for specifying long lists of 'competencies' or 'standards' which purport to tell us in an authoritative way what qualified teachers should be able to do; but these lists have been accompanied neither by any rationale for the items listed nor by any explanation of the conception of teaching expertise which underlies the lists.
>
> *(Hagger and McIntyre 2000: 485)*

Our views about the assessment of the quality of teacher education will depend on the position we take on this debate.

Table 13.1:Reform traditions of 20th century US teacher education

Tradition	*Examples*
Academic	Sound liberal-arts education complemented by apprenticeship in school
Social efficiency	Competency/Performance-based teacher education
Developmentalist	Teachers for 'child-oriented progressive schools'
Social-reconstructionist	'Zeal for the betterment of our common civilization' 'Reflective and socially engaged practitioners'

Source: based on Liston and Zeichner 1991

Three starting questions about purpose and quality

Without expecting simple answers, we can usefully begin with three apparently simple questions, even though each of them will drive us back to questions about educational purpose and quality.

Question 1: is open and distance learning any good for teacher education?

Question 2: how do we tell?

Question 3: if it is any good, how do we make it better?

Nearly twenty years ago, in looking at inservice teacher education in Africa, Jeremy Greenland distinguished four things it was being used for: for unqualified teachers; to upgrade the capacities of existing teachers even if they had been trained; to prepare them for new roles, such as becoming a head teacher; and to support curriculum change (Greenland 1983). He developed a further set of distinctions beyond these which are set out in table 13.2. They remind us, again, of the need to think about the purposes of teacher education in order to decide how to assess its quality Open and distance learning has been used for many of the purposes he discusses; my own organisation, the International Research Foundation for Open Learning is at present mapping world experience here and carrying out a series of case studies in about ten countries, on behalf of the British Department for International Development and UNESCO.[57] Many of the conclusions in this paper draw from that work and previous investigations of the same kind. There should, then, be enough experience for us to answer the crude question about whether open and distance learning works for teachers.

Table 13.2: Purposes of INSET programmes

Purposes	*Subcategories*
Initial training of unqualified teachers	programmes leading to certification
	short induction courses
Upgrading of teachers who already have a qualification	for subqualified teachers
	for qualified teachers
Preparing teachers for new roles	as head teachers
	to work in teachers' colleges
Training related to content of the school curriculum	for planned curriculum change
	refresher courses

Source: based on Greenland 1983

We can look at the experience in any number of ways. One is to identify the elements that go into it. 'For many audiences teacher education is likely to include four elements: general education, teaching about the content that trainees will themselves have to teach, material about children and their education, and practical work on the craft of teaching. The balance between the four will be most heavily affected by the educational background of the students' (Perraton 2000: 58).

Then, while recognising two sets of differences between preservice and inservice teacher education, and between initial training and continuing professional development, we need to recognise that these distinctions may be blurred. Another analysis, made a decade ago but still relevant, noticed that

> for many unqualified teachers in-service training may be the only training they receive. For others, pre-service education may well have been of a general kind, an extension of their secondary education with some study of education

[57] This work is reported in Perraton, H., Robinson, B. and Creed 2001 and 2007; Perraton, H., Creed, C. and Robinson, B. 2002.

> thrown in for good measure. In-service education (if they are fortunate to receive any) may constitute their only source of *professional* training. ... We will also suggest that the current divisions between 'pre-service' and 'in-service' training may prove increasingly unprofitable to maintain and that we may do well to evolve a more unified and more flexible concept of 'Teacher Education and Training'. *(Hawes and Stephens 1990: 93)*

We need to rephrase question one asking instead, 'given our assumptions, given the educational purpose, given the particular audience, does open and distance learning look potentially useful for teacher education?' We can find some of the answers from international experience over the years. The examples that follow are illustrative. (There is more about the experience in Perraton 1993 and 2000 and publications from our current research activity will fill out the picture over the next year.)

Some examples of open and distance learning for teachers

We can begin with the initial training of unqualified teachers. When Tanzania decided to move towards universal primary education, it calculated that it needed an extra 40,000 teachers. As the existing training colleges were producing only 5000 new teachers a year it was decided to recruit secondary-school leavers and train them, on an apprenticeship model, partly on the job and partly through distance education. Over a course of three years, trainees were posted to schools where they had a reduced teaching load. They then followed correspondence courses backed by radio programmes, were supervised and tested on their classroom practice, and ended by spending six weeks at a residential seminar. 45,000 trainees began the course and 38,000 completed and passed their examinations. Two evaluations found that they ended up reasonably competent in the classroom (Chale 1993; Mählck and Temu 1989). In an organisationally different approach Nigeria set up a single-purpose, distance-education, National Teachers Institute in 1976. It has become a permanent part of the federal education system. Over the years it has been involved both in that initial job and in upgrading qualified teachers. The institute teaches mainly through correspondence, with some face-to-face support (Bako and Rumble 1993, Perraton 2000: 67-8).

More recently, as it was coming out of war, Uganda began to experiment with distance education as a way of upgrading serving but untrained teachers. The Northern Integrated Teacher Education Project ran from 1993 to 1997 in ten districts of northern Uganda, an area of about 400 by 200 kilometres. The programme integrated its distance teaching with the work of ten conventional teachers' colleges where trainees attended two residential courses each year. They also went to a twice-monthly tutorial and got help, guidance and support from tutor-counsellors. In contrast with the Nigerian and Tanzanian examples, the programme gave relatively heavy weight to pedagogy, which took up about 40 per cent of the time, with subject matter knowledge taking up most of the other 60 per cent. About 88 per cent of students completed the course and the pass rate is understood to have been around 75 per cent (Wrightson 1997, Perraton 2000: 69-70).

There is contrasting experience from the north where the (then) Department for Education and Science commissioned the Open University to run a postgraduate certificate course in education for graduates seeking a qualification that would allow them to teach in public-sector schools. The programme had two unusual features. First, it made extensive use of computer conferencing both for teaching students and for

overcoming their isolation as they were not meeting together in class. Second, the supervision and mentoring of students was made the responsibility of the schools in which they did their teaching practice so that the whole programme could be seen as school-centred. This meant that a significant proportion of the total expenditure on the course went to pay for this mentoring: schools received a payment of £1000 per trainee.

A final example comes from a small state. Belize, in central America, has used open and distance learning for initial teacher training, in parallel with a conventional programme, but also set up a one-year course for the inservice education of some 200 headteachers. The course had three main elements: self-study, monthly workshops, and a monthly visit to the head's school by a teachers' college supervisor. Headteachers were asked to develop a portfolio of work rather than sit a formal examination. Evaluation was 'based on performance on assignments and tasks given, supervisors' reports on progress observed over time; and an exit interview conducted by an official of the Ministry of Education, the programme coordinator and a supervisor' (Thompson and Crossley 2000: 144). The self-study teaching material comprised a set of modules developed by the Commonwealth Secretariat, originally for use in Africa, with a locally developed wrap-around guide. The course is interesting both because of the audience at which it is addressed and because of the tight integration between its distance and other elements.

The evidence from these and other projects and programmes makes it possible to sketch some answers to the questions, 'is it any good and how do we know?'. We do not know as much as we would like. In his survey, twenty years ago, Greenland found that while half of 60 INSET activities in English-speaking Africa included some formal evaluation, in only six cases did this include a visit to the teacher's school (Greenland 1983: 107). The situation is probably no different today. Thus, while we do not know as much as we would like about the quality and achievements of teacher education through open and distance learning, the same is true of teacher education generally.

Evidence on quality and effectiveness

We can look for six different kinds of measurement: costs, examination results, learning gains, the subsequent performance of students, the classroom performance of teachers, and the process of learning and teaching. They are probably in that order of difficulty for the policy-maker or researcher.

We have a reasonable amount of data on the cost of open and distance learning for teachers, and on how this compares with other approaches. My own conclusion from the available data is that:

> with the relatively high completion rates often achieved in teacher education, costs per successful student tend to compare favourably with those of conventional education. This differential holds true both for projects with quite modest costs per student, reflecting limited student support, as in Pakistan [at the Allama Iqbal Open University Primary Teachers Orientation Course], and those with relatively high costs incurred for extensive student support and supervision of classroom practice, as in Tanzania [in its large teacher education programme of 1976-84]. *(Perraton 2000: 128)*

Some of the data used for those comparisons came from examination results where, again, on this simple measure, an earlier review argued that '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' (Perraton 1993: 393). In nine cases in that study pass rates were between 50 and 90 per cent; these are probably in line with more recent data.

Rather than look at examination results, we might want to examine learning gains among trainee teachers. This was used as the basis for evaluation of teacher education projects in Indonesia and Sri Lanka but has not been widely adopted (Nielsen and Tatto 1993).

It would also be interesting to ask whether the students of trained teachers performed better than those of untrained but, again, we have little evidence and hardly any of it from open and distance learning. A series of studies have yielded the disturbing results, from developing-country studies, that there was little difference in school outcomes with qualified or unqualified teachers (cf. Perraton 2000: 59-60, Avalos 1991, Torres 1996). One conclusion from this is to suggest that, as teacher education is not working very well, there is much to be said for reducing its costs and cutting its length (cf. Lockheed and Verspoor 1991). But another interpretation of the data is that poorly qualified teachers are not much more effective than poor unqualified teachers and that there is therefore a case for improving – and spending more on – teacher education. Rich-country evidence bears this out. A recent study from USA which compared student achievement and teacher policies in 50 states 'demonstrates that the state leading the nation in student achievement and those that have made the most significant gains in achievement are *the states that have the most highly qualified teachers and that have made consistent investments in teachers' professional development*' (Russell and McPherson 2001: 8).

We have a little more evidence about the classroom performance of teachers who have been trained at a distance, which one would expect to have a bearing on how well their pupils perform in school. Evidence from the large-scale projects to expand teacher supply in Tanzania and Zimbabwe was reassuring: while direct comparison between students taught in different ways was problematic students' classroom practice stood up comparatively well (Perraton 1993: 394-5).

We have all too little information about the process of learning and teaching and come back to this below.

The available data are thin, partly for lack of good robust research, but for what they are worth are summarised in table 13.3.

In interpreting them we need to bear in mind the problems and realities of assessment, some of which have emerged from the discussion so far. In an important and valuable paper about the use of distance education for primary-school teachers, Bernadette Robinson points out that the difficulties of assessing students working through distance education parallel the difficulties in using it for teaching. Distinguishing three levels of assessment, as in table 13.4, she points out that

> Knowledge and understanding are easier for a distance education provider to assess than practice and performance. Assessment of a student's pedagogical skills, the outcomes, is difficult for distance educators to do alone since it needs first-hand observation and authentication. As the model in table [13.4]

Table 13.3: Outcomes of some projects (*Source: Perraton 2000: 80 – 1)*

Project, date, purpose	*Numbers*	*Outcomes*	*Costs*
Inservice upgrading of unqualified primary school teachers, Botswana, Swaziland, Uganda 1967-78	Each in range 600 to 1000	Successful completion rate 88-93%. Anecdotal evidence of impact on classroom performance.	n/a
Kenya programme for unqualified primary school teachers, to improve general educational background and achieve secondary examination passes 1967-73	8433 over 7 years; annual enrolment 850 to 2000	91% passed examination and gained promotion. No firm evidence on classroom performance.	Cost per enrolment relatively high in comparison with alternatives
Tanzania programme to recruit and train on the job primary school teachers for introduction of Universal Primary Education 1976-84	45,534 in three annual cohorts	83% qualified. Positive evidence on classroom performance. Weaknesses in science teaching and self-confidence among female teachers	Cost per successful trainee about half cost of residential course
Zimbabwe Integrated Teacher Education (ZINTEC) for secondary school leavers, trained on the job for expansion of primary schooling 1981-8	7353 over four years	80 % pass rate. Positive evidence of classroom performance but difficult to draw comparative conclusions	n/a
Nigeria National Teachers' Institute training primary school teachers TCII course after 2 years secondary education 1984-90 NCE course after 5 years 1990-	186,713 over period Enrolment of 14,909 on 1st cycle and 26,657 on 2nd cycle	Success rate thought to be in range 25 to 30% of those entering; compares favourably with alternative; no evidence on classroom practice 21,000 students graduated 1994	Cost probably lower than conventional college
Pakistan Primary Teachers' Orientation Course (Allama Iqbal Open University) introducing new curriculum to primary school teachers 1976-86	83,658 total	56% completed course; 38% of original enrolment passed examination Positive self-report on usefulness. No direct evidence of classroom effects	AIOU graduate costs 45-70% of conventional university costs
Indonesia Universitas Terbuka upgrading course for lower secondary teachers	c 5000	Positive effects on subject mastery and in theory and practice in skills; relatively poor results in mathematics; apparent decline in attitudes towards teaching	Cost about 60% of equivalent
Sri Lanka National Institute of Education training primary-school teachers with secondary level qualifications	c5000	Positive effects on subject matter and in theory and practice in skills; less successful than conventional college in mathematics	Cost one-sixth to one third of alternative
Uganda Northern Integrated Teacher Education Project for primary school teachers 1993-95	3,128 enrolled	88% completed and passed examination; some evidence of improved skills in teaching competencies	Cost per student about $2000 compared with $2500 in conventional college

> shows it becomes more complex organizationally for a distance education provider and the costs rise, as assessment moves from Level 1 (knowledge and understanding) to Level 3 (practice and performance), that is from standard patterns of assessment of knowledge for large groups to assessment of individual performance and difference. One strength of distance education is its capacity to deal with large numbers, one limitation is its inability to deal easily with the individual. *(Robinson 1997: 131)*

The difficulties she identifies are compounded if we want our evaluation to do something more than assess competencies against a standard check list.

With many reservations, then, we can sketch an answer to my first two starting points: open and distance learning has been used for all four of the elements of teacher education – general education, subject content, pedagogy and teaching skills – and with some measure of success; we have a range of ways of assessing it. This puts on to the policy agenda the need to consider which techniques can best be deployed for which aspects of teacher education. The challenge for the policy-maker is to match, in the most effective way, the audience, the various elements of teacher education, and the appropriate approach or technology, whether it is based on conventional teacher education or on open and distance learning.

The search for quality: strengthening open and distance learning

And that in turn takes us to our third question: how do we strengthen open and distance learning, ensuring that its process is of at least an acceptable quality.

In a review of this work for the British government Imfundo project last year I concluded by arguing that it was possible to identify six conditions for the success of open and distance learning for teachers which can be derived from the international experience. They are about student support and classroom practice, economics. motivation, management, integration into the regular educational service, and integration in terms of the curriculum.

> The first condition is to set in place effective arrangements to support students and, in particular, to supervise their classroom practice. These arrangements need to be sensitive to gender and to be realistic in their understanding of students' own circumstances. If programmes are to develop teachers' capacities in the classroom then a system is needed for managing and supervising their classroom work. A variety of structures have been used, ranging from the ad-hoc and temporary arrangements set up for the Tanzanian programme to the decentralised model of school mentors developed by the British Open University.
>
> The costs need to be right. Distance education demands investment in teaching materials and in a system for teaching and supporting students. These elements generally have fixed costs, which do not rise with increasing numbers of students, so that economies of scale are possible. If, however, the costs of student support, which vary with the number of students, rise to the levels of those of conventional education, then the distance-teaching alternative is bound

Table 13.4: Assessing teachers' knowledge and practice at a distance

Teachers' knowledge and practice	*Nature of assessment*	*Implications for distance education*
Level 1: Knowledge and understanding Of academic subjects to be taught. Of pedagogical concepts, ideas and theory.	Written work (assignments), essays, course tests or final examinations.	Can assess learning and give feedback to students on a large scale (hundreds or thousands). Can achieve economies of scale (standard assignments). Can provide well-designed assignments because of the resource put into course design; may also retreat into over-use of multiple-choice questions for administrative convenience. Assignments may remain too theoretical or unrelated to the realities of classroom life, or lack regional relevance.
Level 2: *Knowledge applied to practice* Application of knowledge to teacher's own context; testing out and interpreting ideas about pedagogy; evaluating practical activities and experiments, and reflecting on them.	Written reports and accounts of things done (description and analysis of activities such as teaching a mathematical topic a new way; collecting evidence in a child observation study; organizing a classroom differently; or developing new language and reading activities).	Good learning materials can structure this process for the teacher (distance not a barrier). Can support linkage between theory and practice. Not possible for a distance education provider to tell from the student's reports how authentic an account is given, for example, that classroom practice matches what is described. Can be more time-consuming and expensive for a distance education provider to assess (non-standard assignments, greater individual differences).
Level 3: *Practice and performance* Enactment of knowledge and ideas. Demonstration of competences and skills.	Direct observation and authentication of individual teacher performance.	Much more complex to organise and manage than Level 1. More labour-intensive and expensive than Level 1; approximates more closely to costs of conventional training. Requires more support staff in a variety of roles than Level 1; needs more staff training provision; more support materials; more monitoring and management. Needs local partners. Cannot be done at a distance (without sophisticated interactive technologies). Requires local partners.

Source: Robinson 1997: 132 (reproduced with the generous permission of Professor Bernadette Robinson)

to cost more. This may be acceptable, if it is the only way of reaching particular groups of remote and isolated students. But we need to work out the costs and have good reason to adopt any strategy that increases unit costs.

Teachers, like any other learners, need to be motivated. In many cases they are motivated to study at a distance because they expect to achieve an improved qualification, higher status, and more pay. One early programme in east Africa collapsed when, because government felt it could not meet the costs of increased pay, the guarantee of improved status on qualifying was removed. Where programmes have been provided as part of inservice education, without any guarantee of a change of status, other ways of motivating students need to be found.

Good management of the process of distance education has an obvious priority. While distance students are amazingly tolerant of the delays inherent in the process, they need to receive lessons on time, to get reactions from their tutors despite all the logistical problems involved, and to be able to depend on well-prepared teaching materials available in a medium and at a time that is convenient for them. The logistics of all this tend to be more complicated than the logistics of conventional teaching: you can walk into a classroom and make last-minute changes but cannot do this for students 100 kilometres away.

Successful programmes have been integrated into the educational service. The Nigerian National Teachers' Institute provides one example as a federal institution meshed into the regular system for teaching and examining students. In contrast, early teacher-education programmes in Botswana and Swaziland were designed as temporary add-ons to the system, each located in a single teacher's college, and planned to run over a fixed period of time after which there would be no more untrained teachers. Their allotted time span ran out, but untrained teachers remained in the service.

The curriculum also demands integration. It needs to be close enough to the day-to-day practice of the schools for trainee teachers to see how the two fit together, while remaining some steps ahead of current practice so that teachers of the future may teach more effectively than those in the classroom today. The challenge here is to integrate the ideas about education built into the curriculum of teacher education with the reality of the schools where trainees are teaching or will teach. *(adapted from Perraton 2000a)*

This list does not address one important issue for this meeting, about systems of evaluation that can be built into open and distance learning in order to help ensure quality. There are warnings from conventional education here against collecting data that may be misleading, inaccurate, and worst of all inadequate. In examining 'quality and equality in third world education', Welch recently pointed out that, 'data are not always systematically collected, or complete … and sometimes political considerations, national or international, ensure that it is difficult for scholars to get access to that information that is available' (Welch 2000: 6). (At Dakar last year for example, despite the importance of the issue, we did not have comparative data on trained and untrained teachers.) He warns against the over-use of simple economic measures and educational indices and goes on to ask how far:

> indices of educational quality should embrace the relative status of the dispossessed and marginal in societies, that is, the most disadvantaged groups. To what extent should the schooling and opportunities available to girls be taken as a ce ntral index of educational quality, in contexts where their disadvantage has been so marked? *(ibid.: 7)*

The organisational structure of open and distance learning makes it relatively easy to collect some kinds of performance data. But the major challenge here is to devise systems that are sensitive to those broader and more difficult issues, and that guard against damaging feedback in which we teach or administer in order to match the assessment system rather than to educate. If we are to avoid those problems we need to ask not just narrow questions about competence, or about examination pass rates, but also to consider what kind of education is going on in the classrooms of our teachers. A recurrent theme from the experience is the need to concentrate on classroom teaching – the difficult part; in contrast the distance-education elements are easier.

I began with three questions. The Commonwealth of Learning want me to finish with five as a starting point for discussion. The following are intended to open up the difficult issues that are on our agenda.

1. How do we integrate open and distance learning with the rest of teacher education?
2. In that integration, how do we look after teaching practice? How far would it be realistic and desirable to use school-based mentoring? What systems could we put in place to assure its quality?
3. Given the range of jobs to be done in teacher education, how do we choose which technology and approach to use for which job?
4. What kind of quality measures can we put in place that will be useful, informative, and will not distort the educational purpose of what we are trying to achieve?
5. What organisational structure makes sense, in your own country or institution, for open and distance learning and how does it cope with the difficulties examined in questions 1 to 4?

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14 Distance-learning scholarships in higher education

Previous papers have been critical of the scarcity of data on the outcomes of distance learning programmes. A programme of distance-learning scholarships, organised and funded by the Commonwealth Scholarship Commission in the United Kingdom, meant that it was possible to collect detailed information on graduation rates for a set of master's level programmes, offered by British universities to students internationally. This paper, which summarises the evidence, was presented to the research conference of the European Distance Education Network[58] in Paris in 2008.[59]

This paper reports on the work of the Commonwealth Scholarship Commission in the United Kingdom in using distance-learning scholarships to widen access to master's level courses offered by British universities. It is a response to the growing pleas for hard data on the costs and effects of cross-border and virtual learning. Kapur and Crowley, for example, have recently noted that, for a higher education 'sector whose main purpose is to train people with strong analytical skills, it is ironical that its own self-analysis is replete with homilies and platitudes, rather than strong evidence'. They note too the shortage of 'comparable data on the cross-border electronic delivery of educational programs and overseas campuses, let alone on the educational outcomes of these programs' (2008: 15-16). The paper sets out and assesses the results achieved by the commission's programme of distance-learning scholarships and identifies policy issues and research questions that follow from the analysis. The research it describes has been carried out within the context of a l arger programme of evaluation of the commission's work generally. In doing so it rests on the existing evidence on two basic points: first, that there are benefits, including economic benefits, which flow from higher education including postgraduate education; second that there are particular benefits in actual or virtual student mobility that enables learners to study abroad. These assumptions are not examined further here.

Open and distance learning has been acclaimed, even justified, because of its capacity to widen access to education. Many institutions have emphasised its capacity to meet the needs of the educationally disadvantaged or under-privileged. The British Open University exists because of a commitment by a socialist government to widen educational access. Others followed its example. The main aim of the Dr B. R. Ambedkar Open University in India, for example, is 'to promote equality of educational opportunity for as large a segment of the population as possible'. In Pakistan the Allama Iqbal Open University was set up with 'the declared aim of providing educational uplift of the masses' (Perraton 2007: 87). Most of these institutions have, above all, been concerned with education within national frontiers. Programmes at school level, through national institutions like the nongovernment National Extension College in Britain and the *Centre National d'Enseignement à Distance* in France, and at tertiary level through open and dual-mode universities, have had as their primary aim

[58] The European Distance Education Network (EDEN) has been renamed The European Distance Education & E-Learning Network (EDEN)

[59] Perraton, H. (2008) 'Access to international postgraduate study: The role of distance-learning scholarships', paper presented at research conference of the European Distance Education Network, Paris, 20-22 October

the meeting of national needs, for ordinary school examinations and for first degrees. But international audiences also exist.

Communication technologies have provided new opportunities for meeting the needs of new audiences. They always did: the university extension movement in Britain got under way in the Victorian railway age, with extension tutors travelling from their campuses to teach in provincial cities. By the 1980s, even before matter-of-course access to the internet, it was clear that,

> the new communications technologies make it possible for learners to have access to the world's knowledge no matter where they live. Economic, social and political realities still limit the sharing of the world's educational resources; but with access to the appropriate equipment any university, college. library, or individual, in no-matter how remote a spot, can tap into these resources as easily as those in Toronto or Sydney or Oxford. *(Briggs et al. 1987: 8).*

One consequence of this change is that distance learning can, more easily than ever, cross national boundaries. Already in the 1990s distance-learning students could send their assignments by fax, rather than wait for the post. By the 2000s universities were increasingly using email or web-based communication to reach their regular students. Once this was the norm it was possible to adapt the American land-grant motto that 'the borders of the campus are the borders of the state' and claim that the campus need have no borders. Universities have increasingly moved into cross-border learning.

One political change has fostered this process. In much of the industrialised world university education expanded rapidly in the 1990s, even though the rise of the new right meant that funding was ever-more constricted. At the same time, tertiary-level institutions were given new freedoms to experiment, were encouraged to compete, were urged to seek new audiences. In Britain, in 1992, the polytechnics which had previously been under the control of local government, now became independent universities with the power to award degrees. In Australia, in a similar move, the Colleges of Advanced Education gained university status in the early 1990s. With new freedoms, universities flexed new muscles. Within Britain, despite these changes, universities were constrained in the fees they could charge for conventional first-degree students within the European Union. They were, however, free to determine their own fees for students outside Europe and for distance-learning students. This freedom, the opportunities offered by the new technologies, and a desire to teach internationally in their areas of particular strength and expertise, all drove universities to launch new distance-learning programmes and to recruit for them internationally. Australian universities did so with vigour. With the Open University and the University of London dominating the scene in offering part-time education for first degrees in Britain, new programmes in this country tended to be at master's rather than bachelor's level.

A variety of motives were at play here, but altruism was necessarily constrained: public funds were not generally available for distance-learning courses so that they had to pay their way. The result is that the fees charged were higher than many individual students could pay, and beyond the reach of most developing-country students.

Scholarships and distance learning

Scholarships have always played a part in widening access to higher education. Since it was established in 1959, the Commonwealth Scholarship Commission has managed scholarships offered under the umbrella of the Commonwealth Scholarship and Fellowship Plan (CSFP). Across the Commonwealth as a whole some 25,000 young scholars and mid-career fellows have studied in a different Commonwealth country from their own. They have established a distinguished track record: vice-chancellors, politicians, poets, along with a few prisoners and a great many academics, have demonstrated through their subsequent career the value of studying abroad. That work continues, and the major function of the scholarship commission is still to provide opportunities for Commonwealth citizens to study for postgraduate degrees through conventional attendance at a university.

In 2000 the commission carried out an appraisal of its own work, launched a new programme of professional fellowships, expanded its support for split-site degrees, and decided to explore the use of distance learning as a new way of supporting study for British degrees by scholars from developing Commonwealth countries.

The British commission's plans drew from a slightly earlier Canadian-Caribbean scholarships programme, under the same CSFP banner. That programme offered degree courses in three areas, teacher education, information technology, and tourism management, which, in principle, were offered through collaboration between Canadian universities and the University of the West Indies or other tertiary institutions in the Caribbean. It achieved an 87 per cent graduation rate (Perraton 2007: 118). The commission noted that the Canadian managers 'strongly advise that provision of distance learning be based on strong relationships with in-country authorities and between the partner institutions. Some face to face interaction is also recommended (each of the courses include at least one visit to Canada)'. The commission was also concerned to strengthen the links between its work in the developing Commonwealth and the developmental goals of the Department for International Development, which provided the major part of its funding. The commission therefore agreed that 'consideration should be given to those schemes which not only help the individual, but also contribute to the strengthening of the institution'. It went on to argue that 'providing places for distance learning on an individual basis unsupported by any link with a home country institution would be problematic … [and] would run the risk of a much higher non-completion rate. Award holders would be less likely to benefit from direct interaction with fellow students'. It therefore concluded that 'support for distance learning should target specific courses and run in partnership between the UK and the developing country institution. These would be selected on the basis of the quality and strength of the link and the relevance of subject matter to developmental priorities' (CSC 2000: para. 68-71).

A distance-learning initiative

The commission set out with three objectives. The first was to experiment. In launching the programme, the commission noted that 'not enough was being done to measure the effectiveness of distance learning programmes internationally' and argued that 'there is every reason to regard our own activities as experimental' (CSC 2002: 11). Second, it wanted to produce graduates overseas and do so efficiently and effectively. Third, it

wanted to promote institutional development within partner institutions, although it did not determine the nature of that development.

Distance-learning courses marked a departure from the commission's well-established methods of working in several ways. Recruitment was for cohorts of students on given courses rather than for individual students; scholars were to study at a distance rather than travelling to Britain for a year or more; and they were to study part-time. In order to launch its programme, the commission needed to identify courses that appeared to be of developmental relevance. To do this it put out an initial call to British universities in 2002 which has been followed by annual calls since then. A considerable number of the responses came from the new universities which had gained that status in 1992. In selecting proposals the commission has been guided by the likely impact of the course on development, by the track record of the provider, and by the strength of the teaching model proposed. It did not lay down any geographical criteria, requiring only that the courses should be on offer within the developing Commonwealth.

The first cohort of students was recruited in 2003 and further cohorts have been recruited in each succeeding year. In all, the commission has now funded 973 students in this way on 29 programmes at 21 institutions. From 2007 it has funded a smaller number of scholarships without requiring the British institutions to be working in a partnership and a year later, with one-off funding from the Department for International Development, supported a third strand of scholarships oriented specifically towards health and education in Africa. All were for master's level programmes, although in some cases students had the option to leave the programme with a certificate or diploma if they did not complete the master's. The programme is summarised in table 14.1.

Table 14.1: Distance-learning programmes

Year	*Type of programme*	*No. of courses*	*Original enrolment*
2002/3	Partnership	3	90
2003/4	Partnership	6	161
2004/5	Partnership	5	146
2005/6	Partnership	10	139
2006/7	Partnership	7	123
	Without partner	6	35
2007/8	Partnership	5	76
	Without partner	4	23
	Africa – education and health	11	180
	Total	29[a]	973

Note a. Total does not sum as some courses funded for several cohorts

This paper concentrates on the initial three annual cohorts of the first strand of awards, offered through partnerships, as these have been running long enough to attempt an

evaluation In these programmes five partner institutions were in south Asia and six in Africa (see table 14.2). In terms of gender, student recruitment matched the social and occupational expectations of the countries concerned: nearly all the Bangladesh applicants for a course on aquatic management and most of the African agriculturalists were men, while paramedical staff in Kenya and Zambia were mainly women.

While the commission was concerned that there should be appropriate arrangements for student support, it did not specify the form this should take. In all cases students have made some use of computer-based communication, even where this has amounted only to the use of email for submitting assignments to tutors. Where computer access has been relatively simple, more extensive use has been made of web-based teaching and communication. Many programmes have provided printed materials to students; in much of south Asia and subsaharan Africa computer access is too slow and costly, as is printing, to make electronic distribution of materials a practicable option.

Four different models of face-to-face support have been developed. First, for some courses, occasional face-to-face courses have been provided at the overseas partner university. For some of these courses staff have flown from Britain to take part as tutors. Second, at the Jomo Kenyatta University for Agriculture and Technology in Kenya, students on an information science course travelled regularly to the campus for sessions on Saturday to back up the distance materials and support from Sunderland University. This also gave students good computer access, of a higher quality and at a lower cost than would be possible at cybercafes. Third, the course at Chainama College of Health Sciences in Zambia was followed mainly by staff of the college who were upgrading their own qualifications so that they benefited from in-house and mutual support. As in the first model this was backed by occasional visits from staff from Britain. Fourth, in two cases, the programme included a one-term course in Britain. Students from the Aga Khan University travelled to the Institute of Education in London and from Jadavpur and Madras Universities in India to the University of Staffordshire for this purpose.

Graduation rates and costs

The first three cohorts of students have now been working for some four, five or six years which makes it possible to calculate minimum and maximum graduation rates which are set out in table 14.2.

To start with the positive, the figures show that the programme has had some success in widening access for the 126 students who have gained a master's level qualification. They have done so without the cost – or the benefit – of attending full-time in Britain. There is some anecdotal evidence that for reasons of their work, or their personal circumstances, they could not in practice have spent a whole year away from home. Many of these scholars, too, did not have academic qualifications at the high level required to gain a scholarship for a conventional full-time awards.

At the same time the figures are lower than had been forecast; an earlier paper from the Commonwealth Scholarship Commission forecast eventual graduation rates of between 78 and 100 per cent, averaging at around 90 per cent (Anderson *et al*. 2006).

Table 14.2: Progress of distance-learning cohorts 2002-2008

Universities and course	*En-rolled*	*Graduated with master's*	*Awarded diploma or cert*	*Dropped out or failed*	*Still working*	*Minimum graduation rate %*	*Maximum graduation rate %*	*Maximum qualification rate %*
2002/3								
Imperial Wye – Pretoria South Africa: agriculture	23	9	3	8	3	39	52	65
Loughborough: energy/water	26	8	0	9	7	31	58	n/a
Sunderland – JKUAT Kenya: information systems	41	31	6	1	3	76	83	98
Totals	90	48	9	18	13	53	68	78
2003/4								
Imperial Wye – Pretoria: agriculture	45	10	0	13	22	22	71	71
Institute of Education – Aga Khan Pakistan: education	20	20	0	0	0	100	100	n/a
Leeds Metropolitan – Chainama Zambia: health	17	17	0	0	0	100	100	n/a
Staffordshire – Jadavpur India: sustainable development	30	1	9	6	14	3	50	80
Bath – CIOB South Africa: construction management	20	0	1	0	19	0	95	100
Dundee – Kenya Medical Training College: nursing	29	0	3	14	12	0	41	52
Totals	161	48	13	33	67	30	71	80
2004/5								
Imperial – Wye – Pretoria: agriculture	25	5	0	4	16	20	84	84
Sunderland – JKUAT: information systems	25	16	0	5	4	64	80	80
Staffordshire – Jadavpur and Madras India: sustainable development	50	0	5	14	31	0	62	72

Leeds Metropolitan – Dar es Salaam Institute of Technology Tanzania: facilities management	21	9	4	3	5	43	67	86
Stirling – Bangladesh Agricultural: aquatic resources development	25	0	1	6	18	0	72	76
Totals	146	30	10	32	74	21	71	78
Total for three cohorts	397	126	32	83	154	32	71	79

Scholars have been taking longer than had been anticipated to complete their courses and dropout and failure rates have been higher than predicted. It is now clear that, for these cohorts, the eventual graduation rate, if this is defined as obtaining the master's level qualification aimed for at the outset, cannot reach more than 71 per cent. The figure for the first cohort, that has been working longest, will fall between 53 and 68 per cent, suggesting that for planning and costing purposes it would be wise to assume an eventual success rate of 60 per cent.

There is considerable variation between the results achieved by different institutions: the University of Sunderland course in information systems, with a 76 per cent graduation rate, together with the Leeds Metropolitan University course in health and the Institute of Education course in education which both reached 100 per cent, were markedly higher than their peers.

A working hypothesis is that this reflects the strength of the face-to-face support offered. The information science students in Kenya attended regular sessions at the partner university in Nairobi while a high proportion of the Zambian students were staff members of Chainama College, the partner institution, with a considerable amount of peer-group and institutional support. The Institute of Education course was one of two which included a one-term course in Britain. The results from the University of Staffordshire, however, suggest that residence in Britain is not a sufficient condition of success. Despite students' enthusiasm at the time, and apparent determination to go home and complete their degrees (personal observation), none have yet graduated and the eventual graduation rate cannot now exceed 62 per cent.

There are considerable variations in the costs of postgraduate education between one university and another, for both conventional and distance-learning courses. For the purpose of analysis we have therefore used general costs, derived from the experience of the Association of Commonwealth Universities which administers the scholarship programme in Britain. Their figures show that one may expect overseas postgraduate student fees for distance learning to average at around £9000. Where students spend a term in Britain this is likely to increase the cost by about £4000 including travel and subsistence. Conventional, full-time, costs for a one-year master's course in Britain are

around £24,000. If we assume master's level completion rates at 95 per cent this gives a cost per conventional graduate of (24,000/0.95) or £25,263.

We can then look at a range of costs per distance-learning graduate for different completion rates, and also take account of the effects of including a period of full-time residence in Britain. It is also possible to calculate the breakeven point at which the cost of producing a distance-learning graduate is the same as doing so through conventional residence in Britain. The figures show that, with a graduation rate of 60 per cent, the cost per graduate, even if one includes a period of residence in Britain, still compares favourably with a conventional residential course. Graduation rates need to fall to around 36 and 52 per cent respectively to reach the breakeven point for fully distance and mixed courses respectively. (The figures need to be treated with some caution. Following much microeconomic practice the costs for both conventional and distance learning assume that no benefits should be attributed to those who do not graduate, or accept a lower qualification, so that all costs are attributed to the successful graduates. Furthermore, no savings have been included in the calculations for fees which were not disbursed where students drop out early. On the other side of the equation we have not included any of the costs met by scholars for materials, communications, or travel.)

Type of course	*£Cost per student*	*£Cost per graduate at graduation rates*			
		70%	*60%*	*c51.5%*	*c35.6%*
Entirely distance	9,000	12,857	15,000		25,263
Including UK term	13,000	18,571	21,667	25,263	

We come back to the more difficult question about whether this was good value for money in the concluding section of the paper.

Institutional development

Partnerships were intended both to support students and to facilitate institutional development overseas. Either from pragmatic caution, or from a wish to respond to a variety of university proposals, the commission avoided spelling out just what it expected here. While, on the part of some commission members, there was a hidden assumption that, as time went on, overseas universities would be able to take over more and more of the running of the programmes themselves, this was not specified as a requirement.

In the event limited institutional development has been documented. By 2008 of the ten programmes shown in table 14.2, four partnerships had come to an end or changed: Loughborough had a partner for only one of the two courses it offered and this did not prove to be robust; Bath had to switch from a partnership with a university to one with the Chartered Institute of Building; Staffordshire had ended its link with Jadavpur University while retaining that with Madras, Dundee had switched from the Kenya Medical Training College to the nongovernment African Medical and Research Foundation (AMREF). Universities are required to report annually on their progress to the scholarship commission. Of ten reports submitted in 2008, four make no reference to institutional development in the context of their partnerships.

Institutional development has taken one of three forms. First, a number of partnerships have concentrated on capacity building and staff development within the academic discipline of the course being offered. The University of Sunderland sees its cooperation in terms of staff development with, for example, one staff member of the partner institution working on a PhD from Sunderland. Chainama College of Health Sciences in Zambia has used its link with Leeds Metropolitan University as a means of raising capacity among its own staff.

Second, partnerships can involve academic cooperation rather than staff development. The University of London Wye College programme, previously part of Imperial College but now the responsibility of the School of Oriental and African Studies, was conceived as part of a continuing cooperation between London and the University of Pretoria in agricultural development. The two institutions are now working jointly on the production of teaching material that could be used by either.

Third, there have been some moves to strengthen student support and to develop teaching capacity of this kind in the partner institution. The University of Stirling comments on this in relation to its cooperation, based on a long-standing partnership in relation to aquaculture, with the Bangladesh University of Agriculture and Technology.

Plutarch warned that 'silence at the proper season is wisdom, and better than any speech' and the reports are remarkably silent about any transfer of responsibility, or about a date at which the overseas partner would be able to run the programme without, or even with reduced, British support.

Institutional development merits further analysis. This paper has, however, deliberately concentrated on outputs and costs in the belief that satisfactory evidence on these comes first, providing a necessary, though not sufficient, justification for investment in distance-learning scholarships.

Discussion

The evidence shows that it is possible to achieve what may be regarded as acceptable graduation rates and costs per graduate through a scholarship programme that funds postgraduate, international, distance-learning students. The Commonwealth scheme has been less successful in its avowed aim of supporting institutional development.

It has been reasonably documented. Open and distance learning has been chary of publishing graduation rates, although there are important recent data from south Asia in Raza 2008. And yet without them educational decision-makers are necessarily planning in the dark, at risk both from luddite reaction against educational innovation and from enthusiastic innovators who let belief run ahead of evidence. Pass rates and costs are not the only factors that matter. But they are a useful starting point. We've shown ours: can we see yours?

The findings have various implications for policy both for the Commonwealth Scholarship Commission and for others. The evidence demonstrates that postgraduate distance learning can under favourable conditions produce graduates at costs that compare favourably with those for conventional, residential, face-to-face degrees. The graduation rates and costs confirm the starting hypothesis that cross-border distance learning can widen university access for people who would not be able to attend a full-

time one-year course in Britain. But there are several reasons for caution. The graduation rates are markedly lower than those achieved through conventional courses: the commission needs either to be content with quite different expectations or to identify the factors that are leading to success rates that are modest when compared with conventional education and change its selection procedures accordingly, either for programmes or for individuals.

Then the case for a residential component needs to be analysed. On the one hand, it increases the costs by over 40 per cent without unequivocally demonstrating that it produces higher success rates. On the other, there are powerful arguments, in terms of education, practicality, and equity in requiring a period of residence. Students on the courses with a residential component commented that this gave them a broader view of their subjects and the relationship between their different elements. They valued the opportunity to work with other students. Although in principle there are opportunities for student-student interaction through the web, the practical difficulties of internet access meant that people had made little use of this. And they had not seen comments on other students' assignments which would have helped them. Face-to-face teaching facilitates dialogue and the critical reflection which, for some educators, is of the essence of education (cf. Barnett 1992: 27; see also Perraton 1974)[60]. It can provide an individual spark. An external degree student attending a residential course run as one of the experiments that led up to the establishment of the Open University made the point: 'I started this degree lark because I wanted to understand things, understand them more than you could with newspapers and the telly. So I thought; right, economics – that's the thing, and I've been bashing away at it by correspondence for a couple of years now. But this week is the first time I've ever had a chance to talk to a real economist. Never even seen one before! I just can't describe what a chance like this means' (Gunby 1966: 23). Education is likely to be richer if it includes some concentrated face-to-face study, under the guidance of teachers, which, for these students, in practice means a period of residence.

The educational arguments are buttressed by practical ones particularly about access to libraries. Students valued the opportunity of spending some time working on their dissertations in well-stocked libraries. The internet is not yet an alternative.

In terms of equity, over and above the educational and practical advantages, many students (and academics) regard a period of study abroad as a benefit. One of the ideas that lay behind the establishment of the Commonwealth Scholarship and Fellowship Plan – as of other plans like the much larger Fulbright scheme – was the belief that a period of living and studying in a different country was valuable in itself, for the individual student and for the student's institution and society. If this is accepted then it is on the face of it inequitable, even though practical and explicable, for a scholarship agency to divide scholars into two groups, one enjoying one to three years residence abroad at the agency's expense, and the other expected to work at home for the whole period. Split-site degrees offer one alternative here; distance learning, including a residential component, another.

[60] See Paper 1 above.

Our results also have implications for research and have identified a series of research issues demanding attention. Can we find better ways of predicting success and so improving student selection? Are there better modalities of face-to-face support – comparatively neglected in some of these courses – in the interests of the students as well as the success rate? Can we identify with some rigour the particular benefits of residential study? Will scholars put into practice what they have learned? Will the subsequent career of these students demonstrate that a British degree gained at a distance is as valuable as one gained conventionally?

That issue has a particular sting in its tail. The commission was attracted to distance learning in the interests of people who wanted to get a higher degree but could not leave their job. It was persuaded that degrees earned at a distance were as legitimate as conventional degrees. If they are, the outcomes should be similar. And yet it is also sometimes argued that, unlike conventional student mobility, open and distance learning will not contribute to brain drain because students do not leave their own country. Of course formal and informal contacts made while studying conventionally may stimulate brain drain. But there is a contradiction in arguing both that two different kinds of degree are of equal standing and that one is likely in practice to offer wider job opportunities than the alternative.

Finally, institutional development and capacity building, in which one university works cooperatively with another, has proved more difficult than had been hoped for. While academic cooperation, and free exchange between institutions, are of the essence of university education, they go against the grain of current norms in which universities see themselves as competing for students and for funds. And yet the success, even if it is more modest than had been hoped for, demonstrates that there is an international demand for specialist postgraduate distance-learning courses in a range of areas relevant to development. Scholarship funds, at the level needed to meet industrialised-country fees, can meet only a fraction of demand. To widen access significantly depends on local, in-country, development so that courses can be offered using local facilities and at local cost. We still need to work on a model of international cooperation that will support that development.[61]

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15 Capability, development, and open and distance learning

This Paper was delivered as a keynote for a seminar on distance learning for health, organised by the London International Development Centre, a consortium of six colleges of the University of London. It drew on evidence from teacher education, and from open and distance learning generally, in order to frame discussions on education for health. It uses a capability approach in examining the evidence, looks back again at nonformal education, and concludes with a proposed set of conditions for success that need to be met in open and distance learning for health or for other sectors.[62]

It is a privilege to be able to open our discussions today and I am grateful for the opportunity of doing so. At the same time it is a daunting privilege: as will soon become clear I have never worked in health education, know very little about health education, and have read little of the literature about it. Much of my argument will therefore come from the left field, sometimes from teacher education, not from health. And I hope to learn a lot during the course of the day.

Two preliminaries. The first is about the distinction, that goes back to Archilochus in the 7th century BC, between the fox who knows many things and the hedgehog, who knows just one thing. This is a hedgehog opening in which I will simply try to establish that open and distance learning can be effectively used to support capability and promote development, in health as in other sectors, but will not necessarily do so.[63]

The other preliminary springs from my ignorance. The WHO has estimated that countries will achieve the millennium development goals in health only if they have at least 23 health professionals per 10,000 of the population. And the global figures show that, for their African and south-east Asian regions, we are well short of those numbers (WHO 2009: 95ff). There are also, of course, wide variations within the regions. More interesting, if we look at neonatal mortality as a single, simple indicator (even accepting that the data are not perfect), it becomes clear that much more is at play than the numbers of health workers: there is no simple, straight line, relationship between this indicator and the numbers of health workers. Sri Lanka has roughly the same ratio of health workers as India but achieves a neonatal mortality rate of 8 per thousand as compared with 39 in India; Jamaica and Argentina both have a rate of 10 per thousand, but Jamaica manages with only two-thirds as many health professionals. The figures are in table 15.1. As we know that educating girls leads to healthier families, I have also put in the gross enrolment ratios for girls in primary education from about fifteen years back which illustrates the point. My second preliminary comment is therefore that, if we want to improve health, we need to look wider than just at the education of health professionals.

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[62] Perraton, H. (2010) 'Capability, development and open and distance learning', Keynote paper for conference on *Distance learning for health*, London International Development Centre, University of London, 26-27 October

[63] A more foxy piece, jumping all over the place and not reproduced here, was promised for a separate distance-learning research seminar, also at the University of London, on the following day.

Table 15.1: Some data on health

	GNP per capita	*Neonatal mortality per 1,000*	*Doctors per 10,000*	*Other health workers per 10,000*	*Total health workers per 10,000*	*Primary school female gross enrolment ratio*
	2007	*2004*		*2004-7*		*1990*
Europe		10	32	79	111	
SE Asia		35	5	12	17	
Africa		40	2	11	13	
Poland	9,850	5	20	52	72	97.8
Sri Lanka	1,540	8	6	17	23	104.8
Argentina	6,040	10	30	8	38	n/a
Jamaica	3,320	10	9	17	26	100.9
Egypt	1.580	17	25	34	59	85.8
Kenya	640	34	1	12	13	93.3
India	950	39	6	13	19	83.5
Nigeria	920	47	3	17	20	79.0

Source: WHO World Health Statistics 2009; UIS EFA Global monitoring report 2002, 2010

Next, four stories.

In 1947 education did not reach far into the mountainous rural areas of that unhappy country Colombia. A Catholic priest, José Joaquín Salcedo, realised that radio might provide a mechanism to bring educational opportunities to rural workers, *campesinos*. He set up a radio school, Acción Cultural Popular (ACPO), which taught over its own radio station, employed field workers, and produced printed materials to teach adults and children in small groups throughout the country. It expanded to the point where it had enrolments of 170,000 and was the springboard from which other radio schools were launched in much of the rest of Latin America. Some soon found that they could not survive the balancing act between offering an effective rural education, and remaining within the law of countries dominated by rich plantocracies and powerful multinationals. (At a meeting my organisation ran in this country in 1978 some of the Latin Americans were unwilling to talk openly about their work in the presence of staff from USAID.) ACPO itself, predictably, fell foul of both church, as libertarian theology became more suspect, and state, and closed down in 1987.

Moving to Africa, another church-backed organisation, the *Institut de Développement Economique et Social* or INADES, based in francophone west Africa, set up a training

arm INADES-Formation in 1962 to promote African development. It worked through relay stations in both west and east Africa and used correspondence lessons, designed for group study, which was supported by the work of animateurs. It courses were aimed at both individual farmers and at extension agents. Unlike ACPO – perhaps the francophone Jesuits are smarter or perhaps it benefited from operating with smaller numbers – INADES-Formation remains in existence today.

The third story is from east Africa where Stephanie Nduba, who was running distance-education programmes at the African Medical and Research Foundation (AMREF), wrote about her student Jane who was posted to a rural health post as the only health worker.

> She remembered that some patients with fever were given antimalarial drugs while others were given antibiotics. She also knew that aspirin and paracetamol were for fever and pain, and that sometimes multi-vitamins were given to weak patients who had little appetite. … She decided that as she could not differentiate the fever-causing diseases such as malaria and pneumonia, she would give all these drugs to any patient with fever and one of them would work. In addition she would give cough medicine and anti-diarrhoeal treatment to those with a cough or diarrhoea respectively. … it was no wonder that there was always an acute shortage of drugs as well as a r ise in drug resistance problems. *(quoted in Perraton 2007: 28-9)*

AMREF's programmes of inservice education are for people like Jane.

For my fourth story I move from Jane to Rita and the educational achievements of the Open University, set up against the wishes of the educational establishment in 1969.[64] Those achievements are familiar enough. But it is just worth noticing that the Open University's founding parents had various different objectives in mind. For Jennie Lee it was to be, uncompromisingly, a university that stood comparison with others and a contribution to national culture.[65] For Michael Young, who had floated the idea, and for Peter Venables, its first pro-chancellor, it was about widening participation. For Walter Perry, its founding vice-chancellor it was about improving university teaching. For its students it was, and is, a mechanism for opening opportunities.

The common theme of the four stories is of an attempt to use open and distance learning as a means towards, in Armatya Sen's words 'the expansion of the "capabilities" of persons to lead the kind of lives they value – and have reason to value' (Sen 1999: 18). ACPO wanted to use education both to support development, through increasing agricultural productivity for example, and to empower its students as individuals and members of society (Brumberg 1975: 4-5). INADES-formation wanted its peasant learners to have the power to control natural resources and marketing channels, to increase their autonomy, and to negotiate in relation to national policy (quoted in Perraton 2007: 23). Jane, like her tutors, wanted to do a better job and enhance the

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[64] The heroine of the film *Educating Rita* transformed her life as a consequence of studying at the Open University.

[65] See Hollis 1997: 305ff; Jennie Lee made the point about the university as a contribution to the culture of society in conversation with me when she visited the National Extension College in 1966.

capability of her patients to lead a healthy life. Rita, and others, had her life transformed by the Open University.

Having used the term 'development' I need, briefly, to explore some relationships between capability, education, and development. There is an extensive, and sometimes inconclusive, literature about the relationships between education and economic growth and the extent to which education contributes to economic development (e.g. Pritchett 2001). But, if our concern is for development rather than just economic growth, we don't need to go down that road but can instead, again following Sen and Mahbub ul Haq, use a human development approach in which we value 'incomes and opulence' not in themselves but 'conditionally for what they help people to achieve, including good and worthwhile lives' (Sen 2010: 226). Sen goes on to argue that

> In assessing our lives, we have reason to be interested not only in the kind of lives we manage to lead, but also in the freedom that we actually have to choose between different styles and ways of living. Indeed, the freedom to determine the nature of our lives is one of the valued aspects of living that we have reason to treasure. *(ibid.: 227)*

A concentration on human development also enables us to restore issues of equity to the discussion whose absence from much of the millennium development goals discussion was noted by the Lancet commission (Lancet and LIDC Commission 2010: 15). It also seems particularly appropriate in health education where there are potential twofold benefits: effective education will enhance the capability both of the health workers and of their clients or patients.

There are, then, three steps to the argument. First, enhancing capability is a major part of what we mean by 'development'. Second, where open and distance learning can strengthen people's capability, it can in turn therefore promote development. Third – and I am not examining this although perhaps that would be worth doing – we can assume that improving their education will make for better doctors and health workers. We need therefore to go on and ask how well open and distance learning has in fact enhanced people's capability and, assuming it has, what we can do to strengthen it.

The answer is mixed. The politics of Latin America killed off most of the radio schools. Despite distance-learning's promise of reaching large audiences, INADES-formation saw its activities decline from the mid-1990s to the mid-2000s. Successful completion rates for degree courses in the well-developed south Asian open universities have often been little over 10 per cent, although higher figures are reported for, shorter, diploma and certificate courses and for postgraduate degrees (Perraton 2007: 101). The comparative evidence from teacher education through open and distance learning shows that programmes in which teachers have been guaranteed more pay, or an assured job, have tended to have success rates of 75 per cent or more. Programmes of continuing professional development, which have often made significant demands on students in terms of time and money for tuition fees, often show much lower rates. We have some, but too little, evidence that training programmes did improve teachers' performance in the classroom (Perraton 2010: 12-13).

The evidence is consistent with the second part of my hedgehog argument that, while open and distance learning can enhance capability and support development, it will not necessarily do so. The American scholar, Bob Hornik, is more depressing. In a review

of several thousand programmes using communication technology for development, particularly for agriculture and nutrition, he found that:

> Given the available data about audiences reached, practices changed, benefits achieved, and long-term institutional survival, we can assume that most of them fail; they have not reached even a small part of their apparent goals.
> *(Hornik 1988: 14)*

He went on to examine reasons for success and failure; his conclusion can be summarised that we know how to do 'communication for development' but fail to implement what we know.

His findings, and more recent research, make it possible to propose some conditions for success. While I will illustrate these from a number of sectors of education, and in particular from teacher education, my hope and assumption is that they are general enough to carry across into health education.[66] They fit under six headings, although in the prescriptive section of his book Hornik makes it seven. I will set them out didactically, partly because I think they are well-established, partly in the interest of provoking debate.

First, respond to the needs and circumstances of the learners. This may seem a counsel of the obvious but has the broadest ramifications which we can begin to explore by looking at money, time and place. In thinking about learners' circumstances we need, crucially, to ask how educational programmes will be funded and whether people can afford to take part in them. On timing, years ago I was involved with a radio-based project of public education run by the cooperative movement in Zambia. It was aimed at men and women but the available broadcasting slot was at a time when women were busy cooking. Much more recently we have evidence from India and from Chile of programmes for upgrading teachers' skills in which the rewards were not guaranteed but there were considerable demands in time, as well as money for tuition fees, from learners. Dropout rates were, almost predictably, high (Perraton, Robinson and Creed 2001: 12 and 16). Online teaching may remove the timing constraint that we faced with fixed broadcasting slots but can put in new demands of money or location. Online students in Kenya on a Sunderland university master's course in computer science were travelling considerable distances to the Jomo Kenyatta University of Agriculture and Technology campus in Nairobi in order to get computer access that was otherwise prohibitively expensive in cybercafes. Among a group of online students from India, studying with Staffordshire university and attending one term there, the only ones who had no difficulty with online access were those working for the Government of India (Personal observations). It follows that our course and curriculum design needs to be sensitive to our learners: this will pose particular difficulties where we are running international programmes with dispersed and diverse groups of learners. The statistics on doctor numbers and neonatal mortality demonstrate the difficulty of making simple assumptions about different national audiences: the job of being a doctor must be

[66] Open and distance learning for teacher education is well documented in: Robinson and Latchem 2003, Perraton 2007 chapter 4, Perraton, Robinson and Creed 2001 and 2007, and Perraton, Creed and Robinson 2002.

different in Jamaica where there are two health workers for each doctor and in Argentina where there are about four doctors for each health worker.

There is another consequence too which gives a second condition for success: devote resources to formative research and evaluation. This was powerfully argued and demonstrated by the American teams who developed the successful use of radio for the, at first sight unlikely, teaching of mathematics and went on to spread round the world (cf. Radio Learning Project n.d.: 6). More generally it is a commonplace of distance learning that, when we can't see our students face-to face, we need to build in processes of testing and of formative evaluation in order to ensure that teaching materials make sense to potential learners.

Third, get the instructional design right. To quote Hornik again 'If constrained to duplicate face-to-face instruction, using media merely as loudspeakers, some decline in quality is inevitable'. (His book is twenty years old but we can draw analogies between some internet teaching today and his loudspeakers.) 'However, if one takes advantage of the special qualities of a variety of media, maximising the potential of each, one may develop a different instructional process, equal to or better than high-quality face-to-face instruction' (Hornik 1988: 8-9). There is a wealth of anecdotal evidence – though less solid research evidence than we would like – to show that using a combination of media, and providing effective support to learners, will yield dividends in terms of their learning and of completion rates. There is, too, extensive general guidance on the planning of curricula, that goes back to Bruner (1960, 1966) and Gagné (1966), on which we can draw.

Fourth, make sure the logistics work. Hornik (1988: 159) proposed the question 'Will it be possible to manage the system, given available personnel and the complexity of the administrative structure?' Repeatedly, evaluations of distance learning programmes for teachers have found that the administrative structure for field support, for visiting teachers in their schools, and for supervising teaching practice have proved the most difficult and weakest part of the system (e.g. Lewin and Stuart 2003: 83-4). John Daniel, former vice-chancellor of the Open University, argues that effective open and distance learning rests on three essentials: good learning materials, effective student support – both subsumed in my heading of instructional design – and efficient logistics (Daniel 2010: 40). We neglect the logistics at our peril.

Fifth, integration. Educational programmes for professional development can seldom stand alone. Programmes for teachers on the use of computers in schools make little sense if the teachers have no access to them. Agricultural programmes about better marketing or new agricultural approaches are of little use unless the necessary inputs are there; they generally need to be integrated with the work of agricultural extension agents.

Sixth, get political support. Kwame Nkrumah reminded us to 'seek ye first the political kingdom'. There are two strands to this. First it is necessary for those running programmes to get and maintain political support, without which they are likely to wither. But, second, it will often be appropriate to include material about mobilising political support within the

curriculum: if health workers, at any level, hope to get public and political backing for what they are doing, they need to learn how best to do this.[67]

Inevitably my six conditions for success leave out a lot of detail: I have not talked about quality assurance, or the choice of media, or different domains of learning, or much more. But I come back to my starting point. There is enough evidence to suggest that, if we meet these six conditions for success, then open and distance learning may indeed enhance capability and support development.

In case this seems too simple, let me then conclude by exploring some of the ramifications of my first and last conditions, about learners and about politics, in relation to international courses. We have, within a two-mile radius, international centres of expertise in various branches of science, human and animal health, education and development. The demonstrated achievements of international distance-learning courses from the Institute of Education, University College, the School of Oriental and African Studies, the London School of Hygiene and Tropical Medicine, and others, have established that we can do decent open learning for international students. The courses can enhance capability and support development internationally. But, even before the threats to HEFCE (Higher Education Funding Council for England and Wales) funding from the Browne funding proposals, we can't use HEFCE money for them (and might have difficult competition with our colleagues for resources if we could).[68] The result is that courses now generally cost between £7,000 and £12,000 even when addressed to students in Zambia or India, say; last week JNU in India was advertising jobs for just the sort of people who might be interested in our courses at monthly salaries of Rs14,000 to 18,000 or about £2400 to 3100 per annum. Although some scholarships for distance-learning students are available, the numbers available are necessarily limited.[69] The mismatch between the educational opportunities we can, and want, to offer, and what people can afford provoke two questions that we might want to consider during the course of these two days. First, who can pay for all this? Second, given that our courses use labour at British prices, and are therefore necessarily more costly than those run in the south at local labour costs, just what should we be doing here in our metropolitan institutions. Just what? And in relation to the theme of this workshop, just what in open and distance learning?

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[67] I am indebted to Trudy Harpham for this point.

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[69] See Paper 14.

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